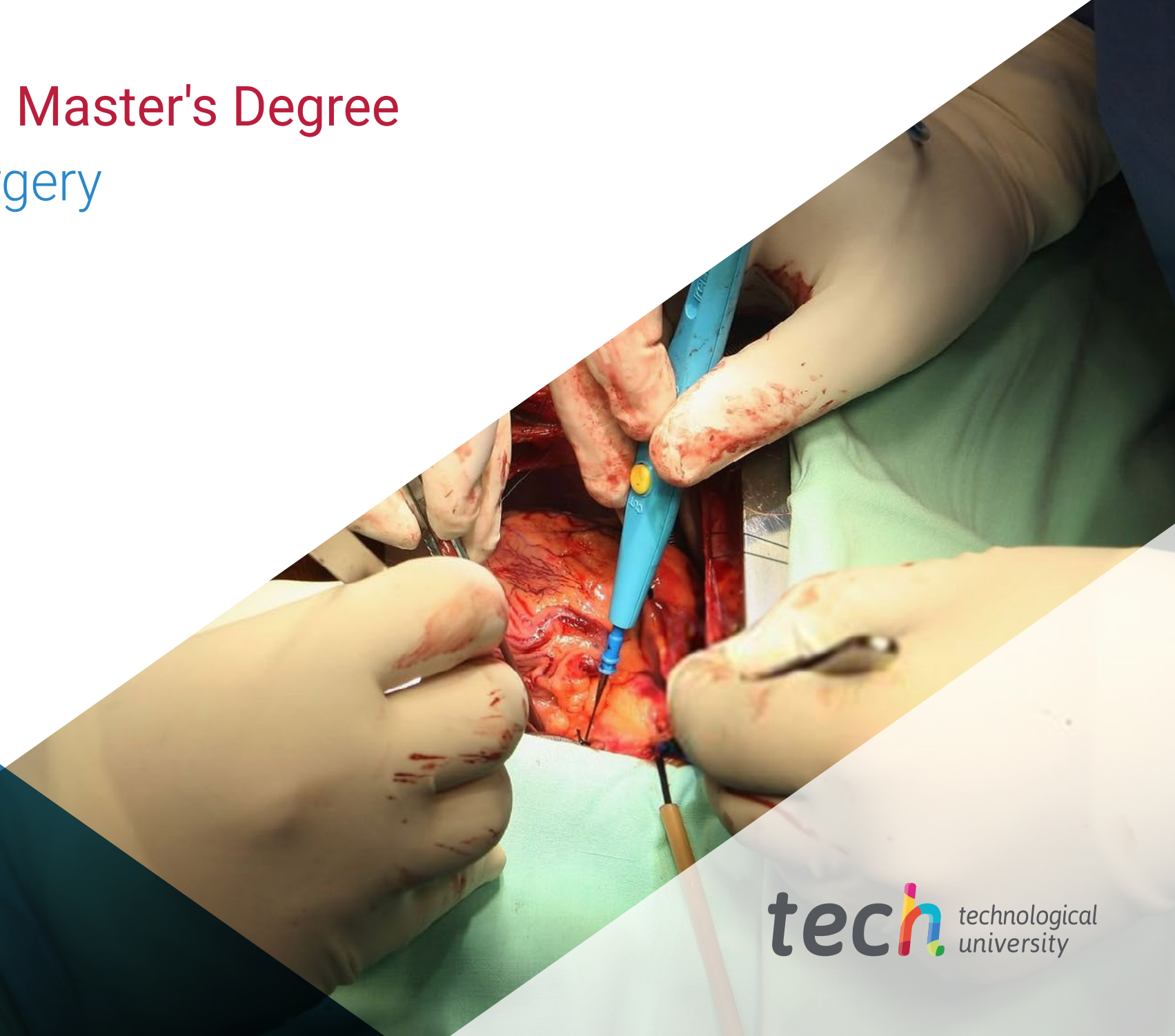


# Professional Master's Degree

## Pediatric Surgery





## Professional Master's Degree Pediatric Surgery

- » Modality: Online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/pk/medicina/professional-masters-degree/master-pediatric-surgery](http://www.techtitute.com/pk/medicina/professional-masters-degree/master-pediatric-surgery)

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# 01

# Introduction

The undeniable progress in surgical techniques such as laparoscopy or robotic surgery has a high impact in the pediatric field, where minimally invasive interventions represent a great progress. As a result, specialists in this area must periodically update their knowledge, also covering the field of nutrition, trauma in childhood or even the evolution of ethical considerations in the pediatric surgical patient. This program is a response to this need, addressing these areas from a practical and rigorous perspective, supported by the experience of an extensive teaching staff. All of this in a 100% online format free of on-site classes and preset schedules.





“

*It delves into the different services of Pediatric Surgery, through the experience of leading surgeons and experts in the field"*

The intense health care activity to which specialists in the area of Pediatric Surgery are subjected makes it extremely complex to keep up to date with all the documentation and new advances that arise. These, precisely, are not few, since in recent years both therapeutics and diagnostic and surgical techniques have advanced at a particularly accelerated pace.

So much so that minimally invasive surgery is the order of the day. Whether due to developments in visualization technology, such as fluorescence in certain processes or to the increasingly prominent presence of robotic devices and laparoscopic techniques, the fact is that these advances have led to a better prognosis and evolution in treatments in practically all areas.

This entails a preferential field of action for the specialist, who, despite the difficulties, must follow a continuous updating process. The TECH Technological University program solves precisely the biggest problem when taking on this task, as it is offered in a completely online format, giving the specialist the necessary freedom to take it on at his own pace.

All the contents available in this master's degree are created by an extensive teaching staff of renowned reference in the surgical field. Therefore, the specialist will have access to detailed videos, analysis of real cases and more multimedia resources based on the most rigorous clinical practice. Throughout the entire syllabus, fields such as general digestive surgery, urological surgery, airway surgery, thoracic surgery, head and neck surgery, maxillofacial surgery, plastic surgery or oncological surgery, among many other branches of maximum interest, will be examined.

The absence of on-site classes and fixed schedules allows the specialist to distribute the study time according to his or her own interests. This makes this program in Pediatric Surgery a perfect academic option to get up to date in the field, relying on an exceptional teaching staff and the most effective teaching methodology.

This **Professional Master's Degree in Pediatric Surgery** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in Pediatric Surgery
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Get updated on cutting-edge techniques such as Exit surgery, robotic surgery and laparoscopic procedures in children"*

“

*Get up to date in the current state of transplants and the most advanced fetal surgery, with a vast agenda that covers a multitude of current pathologies”*

The program includes in its teaching staff professionals of the field who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train in real situations.

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*Access a multimedia library where you will review real cases and practical approaches to a multitude of pediatric surgical pathologies.*

*Distribute the course load at your own pace, downloading all the content from any device with internet connection.*



02

# Objectives

Paying special attention to the need for continuous updating of the specialist, this Professional Master's Degree has been designed to delve into the most rigorous scientific and research experience related to Pediatric Surgery. After graduating, students will have reviewed the topics of greatest current impact in the area, gaining a scientific perspective, both theoretical and practical, on the latest developments in this vast field.





“

*You will meet your most demanding update objectives thanks to a syllabus specially focused on practice and new surgical developments”*



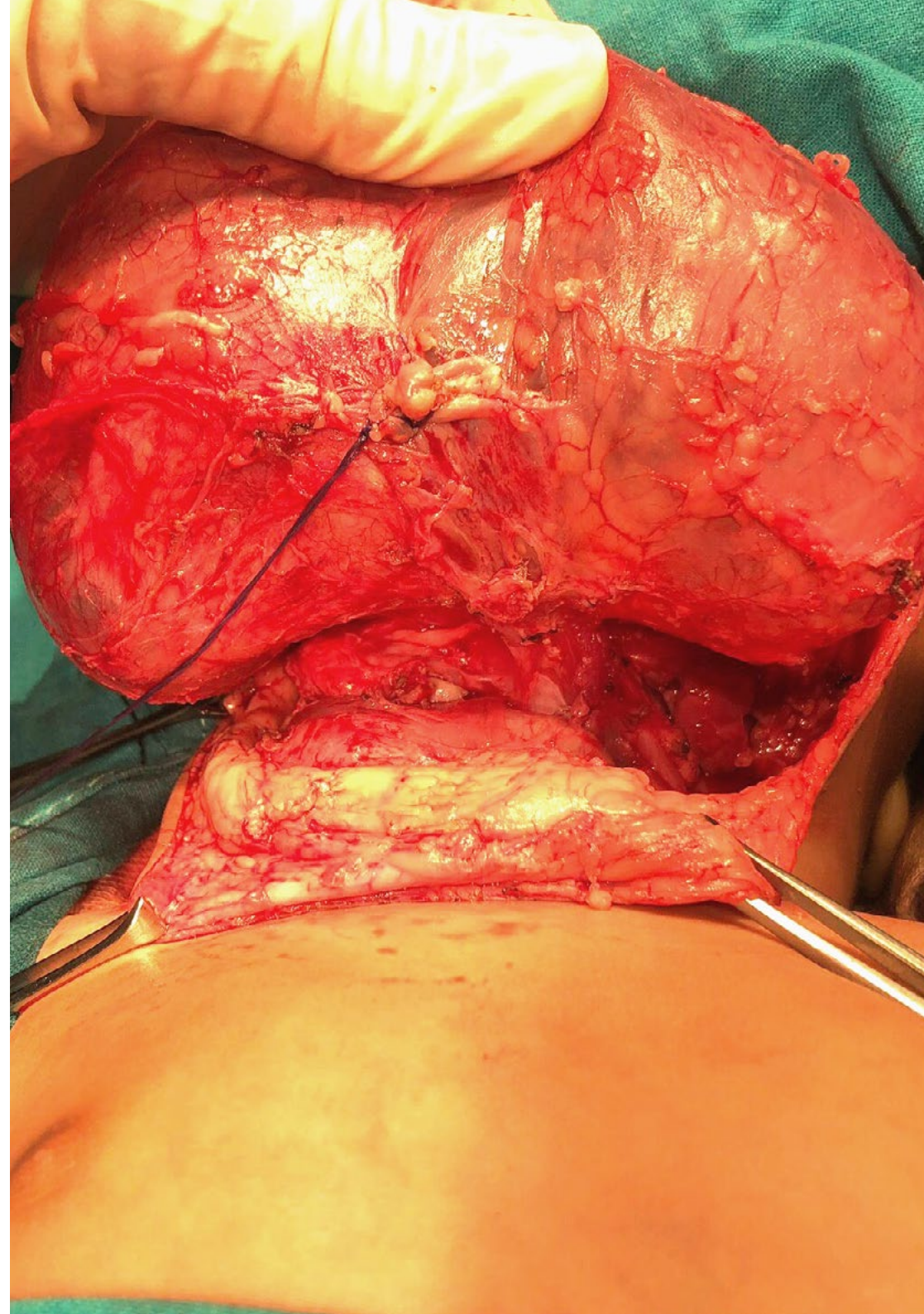
## General Objectives

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- ◆ Develop specialized knowledge and current treatments in pediatric surgery
- ◆ Compile the different diagnostic methods, as well as the different therapeutic options, both medical and surgical depending on the pathology
- ◆ Expose the possible associated complications and the prognosis of these diseases
- ◆ Establish the current treatment guidelines for each of the pathologies described



*You will address relevant issues such as nutrition, fluid management or bioethics with a modern and innovative perspective"*





## Specific Objectives

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### Module 1. Pediatric Surgery Surgical Patient Management Trauma. Robotics in Pediatric Surgery

- ◆ Generate knowledge in health care bioethics
- ◆ Analyze the most recent advances in laparoscopic and robotic surgery
- ◆ Determine the pre and post-operative nutritional management of the surgical patient
- ◆ Acquire the necessary knowledge to establish the different modes of special, enteral, parenteral and other feeding routes
- ◆ Establish the concept of bioethics Establishment of therapeutic effort limitation and palliative care
- ◆ Review the latest updates in laparoscopic surgery and share initial experiences in the introduction of robotic surgery applied to pediatric surgery, as well as in the fields that it applies

### Module 2. General and Digestive Pediatric Surgery I

- ◆ Examine the new techniques and tests available for motility and functional disorders diagnosis
- ◆ Deepen in esophageal functional tests, especially the less common ones such as impedanciometry and esophageal manometry
- ◆ Analyze the treatments with the best results in esophageal replacement
- ◆ Determine the most frequent pathologies with current diagnostic and therapeutic techniques

### Module 3. General and Digestive Pediatric Surgery II

- ◆ Determine the main digestive and hepatic pathologies that may present in pediatrics, including inflammatory bowel disease, short bowel syndrome and intestinal transplantation, coloproctology as well as hepatobiliary diseases and liver transplantation
- ◆ Acquire specialized knowledge about IBD and development of the various therapeutic options that can be applied
- ◆ Determine the different causes that can lead to intestinal failure Short bowel syndrome management in all its stages
- ◆ Establish patient management with anorectal malformations or Hirschsprung's disease
- ◆ Analyze the functional tests used in coloproctology, with special emphasis on anorectal manometry and its different indications
- ◆ Examine the most common hepatobiliopancreatic pathology

### Module 4. Fetal and Neonatal Pediatric Surgery

- ◆ Develop the concept of fetal medicine and to point out the necessary participation of the pediatric surgeon in the diagnosis and treatment of malformative pathology during the fetal period
- ◆ Analyze the normal embryological development and know the alterations that condition the main neonatal congenital malformations
- ◆ Examine the surgical pathologies acquired in the neonatal period and to know their differential diagnosis
- ◆ Analyze the evolutionary and prognostic advice of the main perinatal congenital pathologies for the parents of the affected fetus

- ♦ Propose a guide of material and human resources for surgical procedures in neonatal intensive care units
- ♦ Review the main international consensus guidelines on perinatal management pathology follow-up treated in the neonatal period, mainly esophageal atresia, congenital diaphragmatic hernia and anorectal malformation
- ♦ Establish the current clinical, analytical and radiological criteria for the evaluation of infectious intestinal processes acquired in the neonatal period
- ♦ Establish the current protocols for the management and treatment of short bowel syndrome as a sequel of neonatal surgical pathologies

#### **Module 5. Pediatric Head and Neck Surgery**

- ♦ Analyze the normal embryological development and its alterations that condition congenital malformations of the face, neck and its structures
- ♦ Examine the most frequent congenital pathologies, their anatomy and pathological implications
- ♦ In a systematic way, present the cleft lip and palate treatment and malformation syndrome of facial structures fusion
- ♦ Analyze tumor pathologies that occur at the facial and tumor level
- ♦ Determine the treatment of infectious pathologies of the region
- ♦ Establish the guidelines for the treatment of malformations secondary to alterations in the development of the branchial arches
- ♦ Point out the treatments of the pathologies of the glands of the oral and cervical region
- ♦ Systematize the approach to the pathologies of the cervical lymph nodes
- ♦ Put in order the alterations of the airway and their treatment
- ♦ Train the pediatric surgeon in the diagnosis and treatment of the pathologies of the cervico-facial region

#### **Module 6. Pediatric Surgery Airway and Thorax**

- ♦ Determine the most frequent congenital and acquired pathologies and to know their differential diagnosis
- ♦ Establish the current therapeutic possibilities of chest wall malformations management
- ♦ Establish the current guidelines of airway pathology management in pediatric patients
- ♦ Acquire skills in congenital bronchopulmonary malformations management
- ♦ Address the appropriate therapeutic management of acquired pleuropulmonary pathology
- ♦ Examine the appropriate management of thoracic malformations within the wide range of surgical and conservative techniques currently available
- ♦ Evaluate the advances, experience, results and prognosis of the different treatments available in airway pathology
- ♦ Develop an adequate management in the prenatal and postnatal treatment of bronchopulmonary malformations with appropriate prenatal counseling
- ♦ Determine the thoracoscopic approach and the specific surgical techniques for each of the infant pathologies that benefit from this technique
- ♦ Generate skills in the use of endoscopy, bronchoscopy and laryngoscopy techniques, which provide indispensable information for the diagnosis and treatment of respiratory diseases in childhood

#### **Module 7. Pediatric Urology I. Upper Urinary Tract. Pathology and Surgical Techniques**

- ♦ Determine the management of pathologies in pediatric urology (theoretical-practical) through the approach in the diagnosis, treatment and follow-up of the patient in the prenatal and postnatal period
- ♦ Analyze the knowledge and management of the different surgical techniques (endoscopic, laparoscopic and percutaneous) for the care of patients with pediatric urological pathology
- ♦ Determine the most frequent congenital kidney pathologies
- ♦ Differentiate between obstructive and reflux pathology

- ◆ Generate knowledge in renal surgery
- ◆ Examine percutaneous, pneumovesicoscopic and retroperitoneoscopic renal surgery
- ◆ Evaluate the different methods of percutaneous approach access in the pediatric patient
- ◆ Develop the different types of lithotripsy used in renal lithiasis

### **Module 8. Pediatric Urology II. Lower Urinary Tract Pathology**

- ◆ Determine pediatric urology pathologies management (theoretical-practical) through the approach in the diagnosis, treatment and patient follow-up in the prenatal and postnatal period
- ◆ Develop the pediatric neuropathic bladder
- ◆ Differentiate diagnostic and therapeutic techniques used to resolve congenital and acquired pathologies
- ◆ Examine the current status of pediatric neuropathic bladder
- ◆ Analyze the pathophysiology of the pathology
- ◆ Determine the bladder exstrophy and epispadias management
- ◆ Present the genital pathology of the child

### **Module 9. Pediatric Plastic Surgery**

- ◆ Develop congenital soft tissue pathology, its embryonic development and its implications in children and adolescents and acquired soft tissue pathology, its epidemiology and its implications in children and adolescents
- ◆ Substantiate and classify vascular anomalies updating treatment protocols
- ◆ Determine the comprehensive management of the pediatric burn patient, peculiarities according to age and burn type
- ◆ Classify pinna anomalies and their therapeutic options
- ◆ Assess the different ways of approaching wound closure and skin and soft tissue defects
- ◆ Learn to diagnose and set the basis for infrequent acquired lesion treatment in children and adolescents

### **Module 10. Pediatric Oncological Surgery**

- ◆ Generate specialized knowledge on the most frequent solid neoplasms in pediatrics
- ◆ Determine the appropriate diagnostic approach to the different pediatric neoplasms
- ◆ Establish appropriate treatment strategies for each of these tumors
- ◆ Evaluate the main causes of surgical emergencies in pediatric oncology and clarify the surgical indications in these cases
- ◆ Substantiate the basic principles in pediatric oncology
- ◆ Analyze the tumor pathologies that occur in the pediatric age group
- ◆ Update staging and treatment protocols
- ◆ Systematize the surgical approach to tumor pathologies in pediatric age
- ◆ Generate specialized knowledge on the main biopsy techniques in the pediatric oncology patient
- ◆ Familiarize the pediatric surgeon with the diagnosis and surgical treatment of the main pediatric tumors
- ◆ Carry out an update on fertility preservation techniques in the pediatric oncologic patient

# 03 Skills

Being a highly complex pediatric specialty due to the variety of pathologies or casuistry that the specialist may encounter, the skills to be developed around it must be updated and perfected as thoroughly as possible. For this reason, special emphasis is placed throughout the syllabus on the different subspecialties of the field, ranging from the methodology of work in plastic and maxillofacial surgery to transplants, robotic management or fetal surgery.



“

*Incorporate into your daily practice the most effective work methods and organization currently available, contrasted by a multidisciplinary and highly advanced team of surgeons”*



## General Skills

- ◆ Analyze the most common pediatric pathologies in the surgical field and establish a plan of action accordingly
- ◆ Develop with the most advanced surgical techniques currently used in pediatrics
- ◆ Determine the most frequent congenital pathologies, their physiopathology and their pathological implications
- ◆ Specify the indications and rational use of complementary laboratory and radiological studies, both in the prenatal and postnatal period
- ◆ Manage the treatment options in pathological wound healing

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*The practical-theoretical approach of the entire syllabus will be key for you to get the most out of all the material taught, being useful even before the end of the degree"*







## Specific Skills

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- ◆ Manage trauma in children, with indications for conservative or surgical treatment
- ◆ Establish the treatment of gastroesophageal reflux with current technology
- ◆ Treat any digestive pathology with both open and minimally invasive surgical techniques
- ◆ Manage the current treatment guidelines for the main congenital and acquired neonatal pathologies
- ◆ Identify the most frequent inflammatory and infectious pathologies affecting the face and neck
- ◆ Establish current treatment guidelines for each of the pathologies of the cervicofacial region
- ◆ Propose diagnostic and treatment protocols for urological pathologies
- ◆ Address congenital and acquired pathology of the hand and the breast
- ◆ Manage the main biopsy techniques in pediatric oncology patients

04

# Course Management

The teaching team of the Professional Master's Degree in Pediatric Surgery has a professional and academic background, highly recognized in the specialty in their field of work. It is a multidisciplinary team, which will make its experience and knowledge available to the specialist. This allows the students to benefit from the daily work experience of the teaching professionals who develop their clinical functions in centers and hospitals of the highest reference in Pediatric Surgery.



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*You will be supported by a teaching staff of the highest quality, made up of surgeons from all the most relevant pediatric areas and with a long history of clinical and field work"*

## Management



### Dr. Paredes Esteban, Rosa María

- ♦ Head of Service and Director of the Pediatric Surgery Clinical Management Unit of the Reina Sofia Hospital
- ♦ Specialist in Pediatric Surgery at the Reina Sofia Hospital
- ♦ Specialist in Pediatric Surgery at de Jaén Medical-Surgical Hospital
- ♦ Responsible for Pediatric Surgery Training at the Reina Sofia Hospital
- ♦ President of the Spanish Society of Pediatric Surgery
- ♦ Coordinator of the Bioethics Commission of the Spanish Society of Pediatric Surgery
- ♦ Coordinator of the Vascular Anomalies Committee of the Reina Sofia University Hospital
- ♦ Coordinator of the Living Donor Transplant Commission (Renal and Hepatic) of Córdoba
- ♦ Doctor of Medicine and Surgery from the University of Granada
- ♦ Degree in Medicine and Surgery from the University of Granada
- ♦ Member of the European Society of Pediatric Endoscopic Surgery, Spanish Society of Pediatric Surgery, Editorial Committee of the Spanish Society of Pediatric Surgery Journal, Scientific Evaluation Committee of the Spanish Society of Pediatric Surgery

## Professors

### Dr. Martínez Plaza, Adoración

- ◆ Assistant Physician of the Oral and Maxillofacial Surgery Service of the Virgen De las Nieves University Hospital of Granada
- ◆ Head of the Children's Oral and Maxillofacial Surgery Unit
- ◆ Co-director of the Craniofacial Malformations and Cleft Lip and Palate Unit
- ◆ Co-Director of the Craniofacial Surgery Unit
- ◆ Doctor of Medicine and Surgery from the University of Granada
- ◆ Graduate in Medicine and Surgery
- ◆ Specialist in Oral and Maxillofacial Surgery
- ◆ Specialist in Stomatology

### Dr. Parente, Alberto

- ◆ Specialist in Pediatric Surgery at Reina Sofia University Hospital
- ◆ Specialist in Pediatric Surgery at Torrejón University Hospital
- ◆ Specialist in Pediatric Surgery in the Pediatric Urology Section of Gregorio Marañón Children's Hospital
- ◆ Doctor of Medicine from the Complutense University of Madrid
- ◆ Graduate in Medicine from the University of Valladolid
- ◆ Specialist in Pediatric Surgery
- ◆ Master's in Clinical Management and Medical and Health Care Management from Cardenal Herrera University. CEU
- ◆ Master's in Pediatric Urology by the International University of Andalusia
- ◆ Member of the European Society of Pediatric Urology

### Dr. Gómez Sánchez, Alicia

- ◆ Specialist in Pediatric Surgery at the 12 de Octubre University Hospital
- ◆ Graduate in Medicine from the Complutense University of Madrid
- ◆ Author of various scientific publications on Pediatric Surgery

### Dr. Ramírez Calazans, Ana

- ◆ Specialist in Pediatric Surgery at the Reina Sofia Hospital
- ◆ Graduate in Medicine from the University of Malaga
- ◆ Specialty in Pediatric Surgery at the Reina Sofia Hospital

### Dr. España López, Antonio José

- ◆ Director of Déntalos Clinic
- ◆ Orthodontist in the Unit of Craniofacial Malformations, Lip and Cleft Palate at the Virgen de las Nieves Hospital
- ◆ Doctor of Dentistry from the University of Granada
- ◆ Graduate in Dentistry
- ◆ Master's in Oral Implantology
- ◆ Health Services Management Expert

### Dr. Castillo Fernández, Aurora Lucía

- ◆ Specialist in Pediatric Plastic Surgery at the Reina Sofia Hospital
- ◆ Graduate in Medicine and Surgery from the University of Navarra
- ◆ Master's in Pediatric Urology by the International University of Andalusia
- ◆ Master's in Pediatric Minimally Invasive Surgery by Cardenal Herrera CEU University
- ◆ Member of the Spanish Society of Pediatric Surgery, Society of Pediatric Surgeons of Andalusia, Vascular Anomalies Committee of the Reina Sofia Hospital

**Dr. Fernández - Bautista, Beatriz**

- ◆ Specialist in Pediatric Surgery at the Gregorio Marañón Children's Hospital
- ◆ Specialist in Pediatric Surgery at the Hospital of San Rafael
- ◆ Graduate in Medicine from the Complutense University of Madrid
- ◆ Specialist in Pediatric Surgery
- ◆ Member of Scientific Review Committee of the "Archivos Españoles de Urología" Journal

**Dr. Cadaval Gallardo, Carlos**

- ◆ Specialist in the Pediatric Digestive Surgery Unit at the Virgen del Rocío University Hospital
- ◆ Specialist in the Oncological, Neonatal and Liver Surgery Unit of the Vall d'Hebron University Hospital
- ◆ Specialist in Pediatric Surgery at the Universitari Dexeus Hospital
- ◆ Specialist in Pediatric Surgery at Teknon Medical Center
- ◆ Specialist in Pediatric Surgery at the Hospital of Quirónsalud Barcelona
- ◆ Specialist in Pediatric Surgery at the Maternal Child Hospital of Badajoz
- ◆ Graduate in Medicine at the University of Extremadura
- ◆ Master's in Education and Audiovisual Communication from the International University of Andalusia
- ◆ Master's in Minimally Invasive Surgery in Pediatrics at CEU Cardenal Herrera University

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- ◆ Specialist in Pediatric Surgery at the Virgen de De las Nieves University Hospital
- ◆ Graduate in Medicine from the Jaime I University
- ◆ Master's Degree in Tissue Engineering and Advanced Therapies from the University of Granada
- ◆ Master's in Pediatric Minimally Invasive Surgery by Cardenal Herrera CEU University
- ◆ Master's Degree in Clinical Medicine from the Camilo José Cela University

**Dr. Soto Beauregard, Carmen**

- ◆ Head of the Pediatric Surgery Department of the San Carlos Clinical Hospital
- ◆ Specialist in Pediatric Surgery at La Paz University Hospital
- ◆ Vicepresident of the National Commission of Pediatric Surgery Specialties
- ◆ Member of the Board of Directors of the Spanish Society of Pediatric Surgery
- ◆ Doctor of Medicine and Surgery from the Autonomous University of Madrid
- ◆ Graduate in Medicine and Surgery from the Complutense University of Madrid
- ◆ Specialty in Pediatric Surgery at La Paz University Hospital
- ◆ European Board in Pediatric Surgery
- ◆ Master's in Health Services Management by the European Institute of Health and Social Welfare
- ◆ Master's in Health Services and Health Companies Management

**Dr. Palomares Garzón, Cristina**

- ◆ Specialist in Pediatric Surgery at the Virgen De las Nieves University Hospital
- ◆ Specialist in Pediatric Surgery at the Puerta del Mar University Hospital
- ◆ Graduate in Medicine from the University of Granada
- ◆ Specialty in Pediatric Surgery at the Regional University Hospital of Malaga
- ◆ Master's in Minimally Invasive Surgery in Pediatrics at CEU Cardenal Herrera University
- ◆ Master's in Pediatric Urology by the International University of Andalusia

**Dr. Tordable, Cristina**

- ◆ Specialist in Pediatric Surgery at the Pediatric Urology Unit of the 12 de Octubre Hospital
- ◆ Degree in Medicine from the Complutense University of Madrid
- ◆ Specialty in Pediatric Surgery at the 12 de Octubre Hospital
- ◆ Master's Degree in Pediatric Urology at the International University of Andalusia
- ◆ Master's Degree in Minimally Invasive Surgery in Pediatrics by TECH Technological University
- ◆ Internship in the Pediatric Urology Service at Great Ormond Street Hospital in London

**Dr. Cabezalí Barbancho, Daniel**

- ◆ Pediatric Surgeon expert in Laparoscopy and Endoscopy
- ◆ Pediatric Surgeon at the Vithas Madrid Aravaca University Hospital
- ◆ Pediatric Urology Surgeon at Sanitas La Zarzuela Children's Hospital
- ◆ Pediatric Urologist in the Pediatric Surgery Service of the 12 de Octubre Hospital
- ◆ Author and co-author of dozens of articles for national and international scientific journals
- ◆ Frequent speaker at national and international congresses related to his specialty
- ◆ Doctor of Medicine and Surgery, from the Complutense University of Madrid

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- ◆ Specialist in the General Aspects and Neonatal Surgery Unit at Gregorio Marañón University Hospital
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- ◆ Specialist in Pediatric Surgery at the Central de Asturias University Hospital
- ◆ Doctor of Medicine from the University of Oviedo
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- ◆ Graduate in Medicine and Surgery from the University of Granada
- ◆ Specialist in Pediatric Surgery at the Virgen De las Nieves University Hospital
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- ◆ Pediatric Surgery Update Course at 12 de Octubre Hospital
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- ◆ Graduate in Medicine and Surgery from the University of Granada
- ◆ Specialist in Pediatric Surgery at the Virgen De las Nieves University Hospital
- ◆ Master's in Tissue Engineering from the University of Granada
- ◆ Postgraduate Diploma in Pediatric Surgery from the Valencia Catholic University

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- ◆ Specialist in the of Thorax and Airway Management Surgery Unit at the Virgen del Rocío University Hospital
- ◆ Graduate in Medicine from the University of Malaga
- ◆ Specialist in Pediatric Surgery at the Virgen del Rocío's Hospital
- ◆ Master's in Minimally Invasive Surgery in Pediatrics at CEU Cardenal Herrera University

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- ◆ Specialist in Pediatric Surgery at the San Carlos Clinical Hospital
- ◆ Specialist in Pediatrics at La Paz University Hospital
- ◆ Specialist in Pediatric Surgery at Quirón Madrid Hospital and Quirón San José Hospital
- ◆ Responsible for the teaching area and tutor of Pediatric Surgery residents at Niño Jesús Hospital
- ◆ Graduate in Medicine from the Complutense University of Madrid
- ◆ Specialty in Pediatric Surgery at La Paz Hospital
- ◆ Master's Degree in Evidence-Based Medicine from the National University of Distance Education
- ◆ Master's Degree in Clinical Management, Medical and Healthcare Management from the CEU Cardenal Herrera University

**Dr. Vázquez Rueda, Fernando**

- ◆ Specialist in Pediatric Surgery
- ◆ Associate Professor in Health Sciences in the Pediatric Area
- ◆ Doctor of Medicine and Surgery from the University of Extremadura
- ◆ Graduate in Medicine and Surgery from the University of Seville Doctor of Medicine and Surgery from the University of Extremadura
- ◆ Specialty in Pediatric Surgery at Reina Sofia University Hospital
- ◆ Master's in Public Health and Health Management from the International School of Hospital Management
- ◆ Master's in Laparoscopic Surgery from the University of Cordoba
- ◆ Master's Degree in Molecular Oncology from the Rey Juan Carlos University





- ◆ Certification by the European Board of Pediatric Surgery

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- ◆ Specialist in Pediatric Surgery at San Juan de Dios University Hospital
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- ◆ Coordinator of the Pediatric Polytrauma Program at La Paz Children's Hospital
- ◆ Member of the Pediatric Liver Transplant Team at La Paz Children's Hospital
- ◆ Member of the Pediatric Digestive Transplant Team at La Paz Children's Hospital
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Specialist in Pediatric Surgery
- ◆ Professor in Neonatal Surgery and Pediatric Liver Transplant Update Courses

**Dr. Bada Bosch, Isabel**

- ◆ Specialist in Pediatric and Minimally Invasive Surgery
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- ◆ Teacher of the suture workshop at several conferences of the Spanish Society of Pediatric Emergency Medicine
- ◆ Collaborator in practical teaching at the Public Health and Mother and Child Department of the Complutense University of Madrid
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- ◆ Specialty in Pediatric Surgery at La Paz Hospital
- ◆ Specialist in the Medical Team of the España Rumbo al Sur in Dominican Republic
- ◆ Graduate of Medicine from the University of Seville
- ◆ Expert in Palliative Care, International University of La Rioja
- ◆ Expert in Vascular Anomalies in Childhood from the International University of La Rioja

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- ◆ Specialty in Pediatric Surgery at the 12 de Octubre University Hospital
- ◆ Master's Degree in Pediatric Urology by the International University of Andalusia
- ◆ Master's Degree in Minimally Invasive Surgery in Pediatrics

**Dr. Gómez Cervantes, Juan Manuel**

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- ◆ Specialist in the Maternal and Infant Section of the Gregorio Marañón Hospital
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- ◆ Master's in Minimally Invasive Surgery at the CEU Cardenal Herrera University

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- ◆ Specialty in Pediatric Surgery
- ◆ Master's Degree in Molecular, Cellular and Advanced Biotechnology from the University of Cordoba

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- ◆ Lead Researcher at The Center for Fetal and Placental Research
- ◆ Professor of Surgery at the University of Cincinnati Medical College
- ◆ Pediatric and Thoracic Surgical Specialist at Cincinnati Children's Hospital Medical Center
- ◆ Specialist in Pediatric Surgery at Vall d'Hebron Hospital and de Nens Hospital
- ◆ Degree in Medicine and Surgery from the Autonomous University of Barcelona

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- ◆ Member of the Spanish Society of Pediatric Surgery, Spanish Society of Urology, Founder of the Spanish Society of Emergency Surgery, SIUP, ESPES

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- ◆ Graduate in Medicine and Surgery, University of Malaga
- ◆ Specialty in Pediatric Surgery at La Paz Children's University Hospital
- ◆ Member of Review Committee of the "Archivos Españoles de Urología" Journal

**Dr. Pérez Egido, Laura**

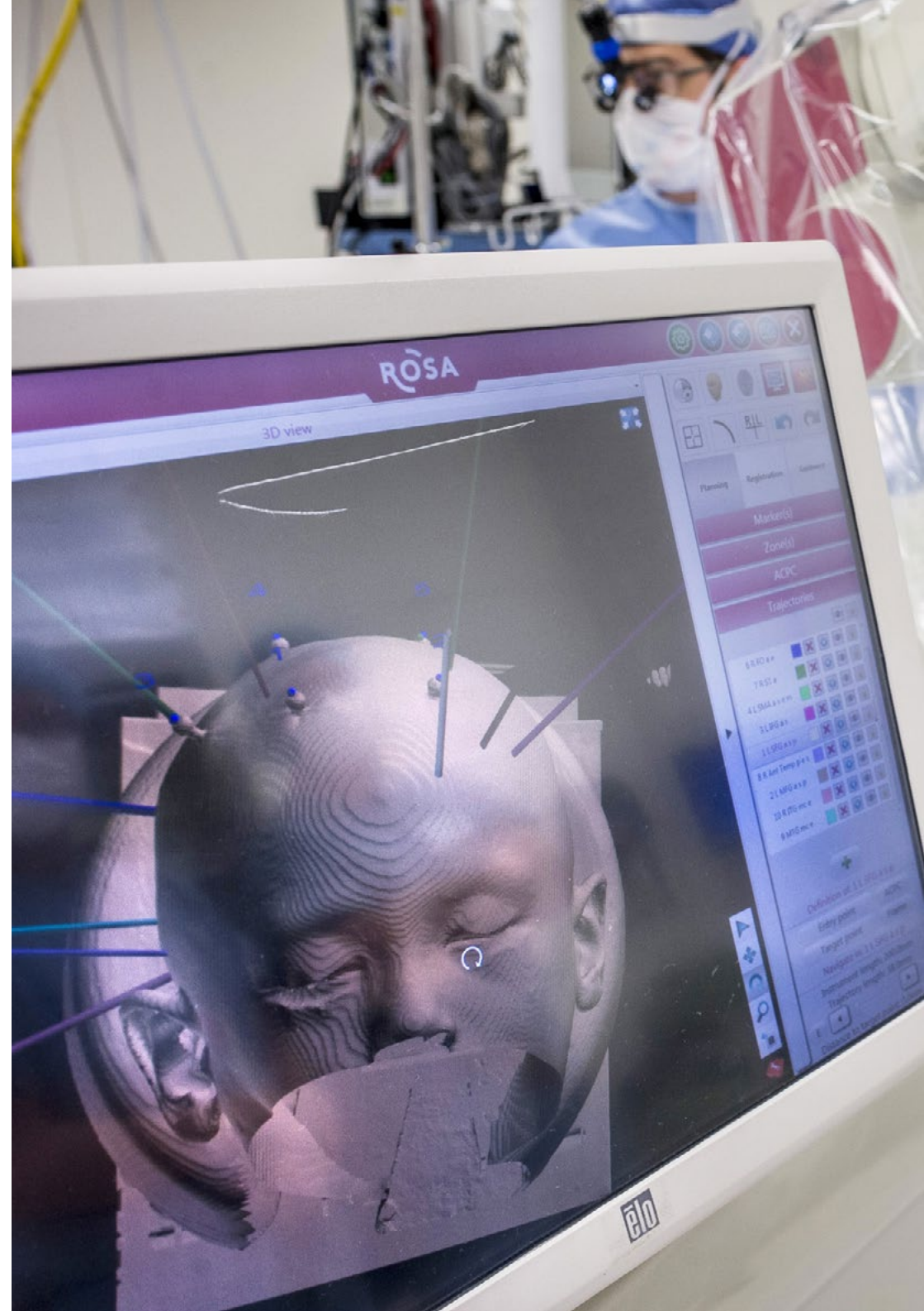
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- ◆ Fellowship in Pediatric Urology at Miami Children's Hospital
- ◆ Fellow by the European Board of Pediatric Surgery (FEBPS)
- ◆ Fellow by the European Academy of Pediatric Surgery (FEAPU)
- ◆ Specialist in Pediatric Surgery (at the Sant Joan de Déu clinical Hospital)

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- ◆ Pediatric Specialist
- ◆ Specialist in Pediatrics at Hospital Escuela Universitario, Honduran Social Security Institute and Hospital María of Pediatric Specialties
- ◆ Doctor in Social Service in Yarula La Paz
- ◆ Doctor of Medicine and Surgery from the National Autonomous University of Honduras
- ◆ Specialist in Pediatrics from the National Autonomous University of Honduras





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- ◆ President of the Spanish Society of Facial Fissures
- ◆ Graduate in General Medicine and Surgery from the Autonomous University of Madrid
- ◆ Specialty in Pediatric Surgery
- ◆ Member of the National Commission of Pediatric Surgery
- ◆ Editor Committee of the Journal of Pediatric Surgery

**Dr. Tolín Hernani, María del Mar**

- ◆ Specialist in Gastroenterology, Hepatology, and Nutrition at the Gregorio Marañón Maternal-Child Hospital
- ◆ Specialist in Pediatric Digestive at the Hospital of San Rafael
- ◆ Degree in Medicine from the Complutense University of Madrid
- ◆ Specialty in Pediatrics at the Gregorio Marañón General University Hospital
- ◆ Subspecialty in Pediatric Digestive and Nutrition at the Hospital General Universitario Gregorio Marañón

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- ◆ Coordinator of Pediatric Oncology at the Reina Sofia Hospital
- ◆ Researcher at the Maimonides Institute of Biomedical Research in Cordoba
- ◆ Doctor of Medicine from the Complutense University of Madrid
- ◆ Graduate in Medicine from the University of Alcalá de Henares
- ◆ Master's Degree in Pediatric Oncology at the Complutense University of Madrid

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- ◆ Specialist in Pediatric Surgery at the Gregorio Marañón University Hospital
- ◆ Specialist in Pediatric Surgery at Parc Tauli Health Corporation
- ◆ Pediatric Surgery Resident Tutor at the Gregorio Marañón University Hospital
- ◆ Graduate in Medicine from the University of Oviedo
- ◆ Specialty in Pediatric Surgery at the Gregorio Marañón University Hospital
- ◆ Master's Degree in Pediatric Urology from the International University of Andalusia
- ◆ Postgraduate Diploma in Pediatric Surgery from the Valencia Catholic University
- ◆ Postgraduate Course in Physiotherapy from the University of Oviedo

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- ◆ Head of the Pediatric Surgery Section at La Paz Children's Hospital
- ◆ Chief of the Pediatric Surgery Section (Urogenital Reconstructive Surgery and Kidney Transplant) at La Paz Children's Hospital
- ◆ Specialist in Pediatric Surgery and Infant Urology at the Hospital La Paz
- ◆ Specialist in Pediatric Surgery at the Hospital General Yagüe
- ◆ Doctor in Medicine from the Autonomous University Madrid
- ◆ Graduate in Medicine and Surgery from the University of Granada
- ◆ Specialty in Pediatric Surgery at La Paz Hospital
- ◆ Fellow of the European Academy of Pediatric Urology

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- ◆ Graduate in Medicine and Surgery from the University of Seville
- ◆ Specialist in Pediatric Surgery at the Virgen del Rocío's Hospital
- ◆ Lecturer in a multitude of workshops and courses on Pediatric Surgery

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- ◆ Specialty in Pediatric Surgery at the 12 de Octubre University Hospital
- ◆ Practical stay in the Pediatric Visceral Surgery Service at the Hospital Lapeyronie in Montpellier
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- ◆ Master's Degree in Minimally Invasive Surgery in Pediatrics at CEU Cardenal Herrera University

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- ◆ Specialist in Pediatric Surgery at the Virgen del Rocío Hospital
- ◆ Master's in Pediatric Minimally Invasive Surgery by Cardenal Herrera CEU University
- ◆ Master's Degree in Pediatric Urology from the International University of Andalusia

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- ◆ Initial Pediatric Trauma Care Course Instructor
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
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- ◆ Master's Degree in Pediatric Urology from the UNIA
- ◆ Master's in Minimally Invasive Surgery by TECH Technological University
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- ◆ Director of the Continuing Education Program in Pediatric Surgery at the Germans Trias i Pujol Hospital
- ◆ Organizer of the twelfth European Congress of the European Society of Pediatric Surgeons
- ◆ Graduate in Medicine and Surgery from the Central University of Barcelona
- ◆ Specialty in Pediatric Surgery at the Vall d' Hebron Hospital
- ◆ Member of the Board Directors of the Ibero Society of Pediatric Surgery

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- ◆ Specialist in the Pediatric Urology section of the Virgen del Rocío University Hospital
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- ◆ Graduate in Medicine and Surgery from the University of Seville
- ◆ Specialty in Pediatric Surgery at the Virgen del Rocío Hospital Complex

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- ◆ Medical students Coordinator of the Pediatric Surgery Service of La Coruña University Medical Center
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- ◆ Doctor of Medicine and Surgery from the University of La Coruña
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- ◆ Specialist in Pediatric Surgery at La Coruña University Medical Center
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- ◆ Graduate in Medicine from the Autonomous University of Barcelona
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- ◆ Head of the Pediatric Oncological Surgery Unit at Hospital Virgen de la Arrixaca
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- ◆ Graduate in Medicine from the University of Cadiz
- ◆ Specialty in Pediatric Surgery at Virgen de la Arrixaca Clinical University Hospital
- ◆ Fellow in Pediatric Laparoscopic Surgery at the Lapeyronie Center University Hospital
- ◆ Fellow in Pediatric Oncological Surgery at St. Jude Children's Research Hospital
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- ◆ Fellow of the European Academy of Pediatric Urology



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- ◆ Chief of the Pediatric Surgery Service of the Virgen de las Nieves Hospital
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- ◆ Specialist in Pediatric Urology at Evelina London Children's Hospital
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- ◆ Graduate in Medicine and Surgery at the Pontificia University of Ecuador
- ◆ Specialty in Pediatric Surgery at the 12 de Octubre Hospital
- ◆ Advanced Pediatric and Neonatal Cardiopulmonary Resuscitation Course
- ◆ Update on Major Burns Treatment
- ◆ Laparoscopic and Thoracoscopic Surgery in Pediatrics Course

**Dr. Barnes Marañón, Sarah**

- ◆ Specialist in Pediatric Surgery at the Virgen De las Nieves Maternal-Children Hospital
- ◆ Specialist in Pediatric Surgery at the Hospital Vithas Santa Catalina
- ◆ Degree in Medicine from the Autonomous University Madrid
- ◆ Specialist in Pediatric Surgery at the Central de Asturias University Hospital
- ◆ Master's Degree in Aesthetic, Regenerative and Anti-Aging Medicine from the Complutense University of Madrid

# 05

# Structure and Content

The entire syllabus of this Professional Master's Degree has been organized to cover both the latest postulates and scientific research in the field of Pediatric Surgery and the clinical experience of all the teaching staff involved. Therefore, with the *Relearning* methodology, a much more efficient academic experience is achieved, saving a considerable amount of study hours for the student.



“

*Delve into the topics that most interest you, through a multitude of complementary readings and additional material”*

**Module 1. Pediatric Surgery Surgical Patient Management Trauma. Robotics in Pediatric Surgery**

- 1.1. Nutrition in the Surgical Child Assessment of Nutritional Status. Nutritional Requirements Special Nutrition: Enteral and Parenteral
  - 1.1.1. Calculation of Water and Electrolyte Requirements in Pediatrics
  - 1.1.2. Estimation of Pediatric Caloric Needs
    - 1.1.2.1. Nutritional Status Assessment
    - 1.1.2.2. Nutritional Requirements
  - 1.1.3. Nutrition in the surgical child
  - 1.1.4. Enteral Nutrition
    - 1.1.4.1. Indications and Contraindications
    - 1.1.4.2. Access Routes
    - 1.1.4.3. Routes of administration
    - 1.1.4.4. Formulas
    - 1.1.4.5. Complications
  - 1.1.5. Parenteral Nutrition
    - 1.1.5.1. Indications and Contraindications
    - 1.1.5.2. Access Routes
    - 1.1.5.3. Composition
    - 1.1.5.4. Production
    - 1.1.5.5. Form of Administration
    - 1.1.5.6. Complications
- 1.2. Ethical Considerations in the Neonate and Pediatric Patient. Child Law
  - 1.2.1. Ethical Considerations in the Neonate and Pediatric Patient
    - 1.2.1.1. Ethics in Pediatric Practice
    - 1.2.1.2. Ethical Considerations in Pediatric Newborn Care
    - 1.2.1.3. Ethics and Clinical Research in Pediatrics
- 1.3. Palliative Care in Pediatric Surgery
  - 1.3.1. Palliative Care in Pediatrics. Ethical Aspects
  - 1.3.2. Bioethics in End-of-life Neonatology
    - 1.3.2.1. Decision-making in Neonatal Intensive Care Units
- 1.3.3. Complex Chronic Patient
  - 1.3.3.1. Therapeutic Effort Limitation
  - 1.3.3.2. The Surgeon's Role
- 1.4. Child Trauma Evaluation and Initial Care of the Polytraumatized Child
  - 1.4.1. Criteria for Activation of the Initial Care Team for Polytraumatized Patients (PPT)
  - 1.4.2. PPT Patient Care Room Preparation
  - 1.4.3. Staged Clinical Management of the PPT Patient
  - 1.4.4. Patient Transfer
  - 1.4.5. Primary Recognition and Initial Resuscitation
  - 1.4.6. Secondary Recognition
- 1.5. Management of Hepatic, Splenic and Pancreatic Trauma in the Pediatric Patient
  - 1.5.1. Abdominal Trauma in Pediatric Patients
  - 1.5.2. Epidemiology
  - 1.5.3. Pediatric abdomen. Features
  - 1.5.4. Etiopathogenesis and Classification
    - 1.5.4.1. Blunt Abdominal Trauma
      - 1.5.4.1.1. Direct Impact or Abdominal Compression
      - 1.5.4.1.2. Deceleration
  - 1.5.5. Open or Penetrating Abdominal Trauma
    - 1.5.5.1. Firearm
    - 1.5.5.2. Weapons
    - 1.5.5.3. Penetrating Impalement Wounds
  - 1.5.6. Diagnosis
    - 1.5.6.1. Clinical Examination
    - 1.5.6.2. Laboratory Tests
      - 1.5.6.2.1. Blood Count
      - 1.5.6.2.2. Urinalysis
      - 1.5.6.2.3. Biochemistry
      - 1.5.6.2.4. Cross-match Testing
    - 1.5.6.3. Imaging Tests
      - 1.5.6.3.1. Simple Abdominal X-ray
      - 1.5.6.3.2. Abdominal and FAST Ultrasound
      - 1.5.6.3.3. Abdominal CT Scan
    - 1.5.6.4. Peritoneal Lavage-Puncture

- 1.5.7. Treatment
  - 1.5.7.1. Blunt Abdominal Trauma Treatment
    - 1.5.7.1.1. Hemodynamically Stable Patients
    - 1.5.7.1.2. Hemodynamically Unstable Patients
    - 1.5.7.1.3. Conservative Approach in Solid Visceral Lesions
  - 1.5.7.2. Treatment of Open Abdominal Trauma
  - 1.5.7.3. Embolization
- 1.5.8. Organ-specific Injuries
  - 1.5.8.1. Bladder
  - 1.5.8.2. Liver
  - 1.5.8.3. Pancreas
  - 1.5.8.4. Hollow Visceral Injuries
    - 1.5.8.4.1. Stomach
    - 1.5.8.4.2. Duodenum
    - 1.5.8.4.3. Jejunum-ileum
    - 1.5.8.4.4. Large Intestine: Colon, Rectum and Sigmoid
  - 1.5.8.5. Diaphragmatic Injuries
- 1.6. Renal Trauma in Children
  - 1.6.1. Renal Trauma in Children
  - 1.6.2. Imaging Tests
  - 1.6.3. Retrograde Pyelography, Percutaneous Nephrostomy and Perinephric Drainage Indications
  - 1.6.4. Renal Trauma Management
  - 1.6.5. Renal Vascular Injuries
  - 1.6.6. Trauma-induced Renal Vascular Hypertension
  - 1.6.7. Chronic Post-traumatic Low Back Pain
  - 1.6.8. Recommendations for Activities in Single-kidney Patients
  - 1.6.9. Disruption of the Pyeloureteral Union in Patients with Previous Hydronephrosis
  - 1.6.10. Urethral Trauma
- 1.7. Vesicourethral and Genital Trauma Management
  - 1.7.1. Bladder Trauma
    - 1.7.1.1. General Aspects
    - 1.7.1.2. Diagnosis
    - 1.7.1.3. Classification and Treatment
  - 1.7.2. Urethral Trauma
    - 1.7.2.1. General Aspects
    - 1.7.2.2. Diagnosis
    - 1.7.2.3. Treatment
    - 1.7.2.4. Complications
  - 1.7.3. Genital trauma
    - 1.7.3.1. Penile trauma
    - 1.7.3.2. Scrotal and Testicular Trauma
    - 1.7.3.3. Vulvar Trauma
- 1.8. Major Pediatric Outpatient Surgery
  - 1.8.1. Abdominal Wall Hernia
    - 1.8.1.1. Umbilical Hernia
    - 1.8.1.2. Epigastric Hernia
    - 1.8.1.3. Spiegel
    - 1.8.1.4. Lumbar
  - 1.8.2. Inguinal and Scrotal Region Hernia
    - 1.8.2.1. Direct and Indirect Inguinal Hernia
    - 1.8.2.2. Femoral Hernia
    - 1.8.2.3. Hydrocele
    - 1.8.2.4. Surgical Techniques
    - 1.8.2.5. Complications
  - 1.8.3. Cryptorchidism
  - 1.8.4. Testicular Anorchia

- 1.9. Hypospadias Phimosis
  - 1.9.1. Hypospadias
    - 1.9.1.1. Embryology and Penile Development
    - 1.9.1.2. Epidemiology and Etiology. Risk Factors
    - 1.9.1.3. Hypospadias Anatomy
    - 1.9.1.4. Hypospadias Classification and Clinical Assessment Associated Anomalies
    - 1.9.1.5. Treatment
      - 1.9.1.5.1. Indications for Reconstruction and Therapeutic Goal
      - 1.9.1.5.2. Pre-operative Hormonal Treatment
      - 1.9.1.5.3. Surgical Defects. Repair in Short Time Staged Reconstruction
    - 1.9.1.6. Other technical aspects Bandages. Urinary Diversion
    - 1.9.1.7. Immediate Postoperative Complications
    - 1.9.1.8. Progress and Follow-up
  - 1.9.2. Phimosis
    - 1.9.2.1. Incidence and Epidemiology
    - 1.9.2.2. Definition. Differential Diagnosis. Other Foreskin Alterations
    - 1.9.2.3. Treatment
      - 1.9.2.3.1. Medical Treatment
      - 1.9.2.3.2. Surgical Treatment. Preputialplasty and Circumcision
    - 1.9.2.4. Postoperative Complications and Sequels
- 1.10. Robotic Surgery in Pediatrics
  - 1.10.1. Robotic Systems
  - 1.10.2. Pediatric Procedures
  - 1.10.3. General Technique of Robotic Surgery in Pediatric Urology
  - 1.10.4. Surgical Procedures in Pediatric Urology Classified According to Localization
    - 1.10.4.1. Upper Urinary Tract
    - 1.10.4.2. Pediatric Pelvic Surgery
  - 1.10.5. Surgical Procedures in Pediatric General Surgery
    - 1.10.5.1. Fundoplication
    - 1.10.5.2. Splenectomy
    - 1.10.5.3. Cholecystectomy

## Module 2. General and Digestive Pediatric Surgery I

- 2.1. Functional alterations of the esophagus: evaluation methods Functional Tests
  - 2.1.1. Esophageal pHmetry
  - 2.1.2. Esophageal Impedance
  - 2.1.3. Conventional Esophageal Manometry
  - 2.1.4. High-resolution Esophageal Manometry
- 2.2. Gastroesophageal Reflux
  - 2.2.1. Gastroesophageal Reflux
  - 2.2.2. Epidemiology and Pathophysiology
  - 2.2.3. Clinical Presentation
  - 2.2.4. Diagnosis
  - 2.2.5. Treatment
    - 2.2.5.1. Medical Treatment
    - 2.2.5.2. Extraesophageal Manifestations of GERD Treatment
    - 2.2.5.3. Surgical Management
      - 2.2.5.3.1. Fundoplication: types
      - 2.2.5.3.2. Other Surgical Interventions
    - 2.2.5.4. Endoscopic Treatment
  - 2.2.6. Evolution, Complications and Prognosis
- 2.3. Acquired Esophageal Diseases. Esophageal Rupture and Perforation, Caustic Stricture. Endoscopy
  - 2.3.1. Acquired Esophageal Pathology Prevalent in Childhood
  - 2.3.2. Advances in Esophageal Perforation Management
  - 2.3.3. Esophageal Caustic Injuries
    - 2.3.3.1. Diagnostic Methods and Management of Esophageal Caustic Injury
    - 2.3.3.2. Caustic Esophageal Stricture
  - 2.3.4. Peculiarities in Upper Endoscopy in Children
- 2.4. Achalasia and Esophageal Motility Disorders
  - 2.4.1. Epidemiology
  - 2.4.2. Etiology
  - 2.4.3. Pathophysiology
  - 2.4.4. Clinical Characteristics



- 2.4.5. Diagnosis
  - 2.4.5.1. Diagnostic Approach
  - 2.4.5.2. Diagnostic Tests
- 2.4.6. Differential Diagnosis
  - 2.4.6.1. Gastroesophageal Reflux Disease (GERD)
  - 2.4.6.2. Pseudoachalasia
  - 2.4.6.3. Others Esophageal Motility Disorders
- 2.4.7. Types of Achalasia
  - 2.4.7.1. Type I (Classic Achalasia)
  - 2.4.7.2. Type I
  - 2.4.7.3. Type III (Spastic Achalasia)
- 2.4.8. Natural History and Prognosis
- 2.4.9. Treatment
  - 2.4.9.1. Medical Treatment
  - 2.4.9.2. Esophageal Dilations
  - 2.4.9.3. Endoscopic Treatment
  - 2.4.9.4. Surgical Management
- 2.4.10. Evolution, Complications and Prognosis
- 2.5. Esophageal Replacement Techniques and Indications
  - 2.5.1. Indications
    - 2.5.1.1. Esophageal Atresia
    - 2.5.1.2. Peptic Stenosis
    - 2.5.1.3. Caustic Stenosis
    - 2.5.1.4. Others
  - 2.5.2. Ideal Esophageal Substitution Characteristics
  - 2.5.3. Types of Esophageal Replacement
  - 2.5.4. Ascent Routes of the Esophageal Substitute
  - 2.5.5. Ideal Intervention Time
  - 2.5.6. Surgical Techniques
    - 2.5.6.1. Colonic Interposition
    - 2.5.6.2. Esophagoplasty with Gastric Tubes
    - 2.5.6.3. Jejunal Interposition
    - 2.5.6.4. Gastric Interposition
  - 2.5.7. Post-Operative Care
  - 2.5.8. Evolution and Results
- 2.6. Acquired Gastric Pathology
  - 2.6.1. Hypertrophic Pyloric Stenosis
    - 2.6.1.1. Etiology
    - 2.6.1.2. Clinical Manifestations
    - 2.6.1.3. Diagnosis
    - 2.6.1.4. Treatment
  - 2.6.2. Pyloric Atresia
  - 2.6.3. Peptic Ulcer Disease
    - 2.6.3.1. Clinical Manifestations
    - 2.6.3.2. Diagnosis
  - 2.6.4. Gastric Duplication
  - 2.6.5. Gastrointestinal Bleeding
    - 2.6.5.1. Introduction
    - 2.6.5.2. Assessment and Diagnosis
    - 2.6.5.3. Treatment Management
  - 2.6.6. Gastric Volvulus
  - 2.6.7. Foreign Bodies and Bezoar
- 2.7. Intestinal Duplications Meckel's Diverticulum Persistent Omphalomesenteric Duct
  - 2.7.1. Objectives
  - 2.7.2. Intestinal Duplications
    - 2.7.2.1. Epidemiology
    - 2.7.2.2. Embryology, Anatomical Features, Classification and Localization
    - 2.7.2.3. Clinical Presentation
    - 2.7.2.4. Diagnosis
    - 2.7.2.5. Treatment
    - 2.7.2.6. Post-operative Considerations
    - 2.7.2.7. Current News and Interest

- 2.7.3. Meckel's Diverticulum
  - 2.7.3.1. Epidemiology
  - 2.7.3.2. Embryology, Anatomical Features, other Anomalies of the Omphalomesenteric Duct Persistence
  - 2.7.3.3. Clinical Presentation
  - 2.7.3.4. Diagnosis
  - 2.7.3.5. Treatment
  - 2.7.3.6. Post-operative Considerations
- 2.8. Intestinal Volvulus Intussusception Intestinal Malrotation Omentum Torsion
  - 2.8.1. Intestinal Volvulus
    - 2.8.1.1. Epidemiology
    - 2.8.1.2. Clinical Presentation
    - 2.8.1.3. Diagnosis
    - 2.8.1.4. Treatment
  - 2.8.2. Bowel Intussusception
    - 2.8.2.1. Epidemiology
    - 2.8.2.2. Clinical Presentation
    - 2.8.2.3. Diagnosis
    - 2.8.2.4. Treatment
  - 2.8.3. Intestinal Malrotation
    - 2.8.3.1. Epidemiology
    - 2.8.3.2. Clinical Presentation
    - 2.8.3.3. Diagnosis
    - 2.8.3.4. Treatment
  - 2.8.4. Omentum Torsion
    - 2.8.4.1. Epidemiology
    - 2.8.4.2. Clinical Presentation
    - 2.8.4.3. Diagnosis
    - 2.8.4.4. Treatment
- 2.9. Cecal Appendix Pathology Acute Appendicitis, Appendiceal plastron, Carcinoid Tumor Mucocele
  - 2.9.1. Appendix Anatomy
  - 2.9.2. Acute Appendicitis
    - 2.9.2.1. Pathophysiology and Epidemiology
    - 2.9.2.2. Clinical Characteristics
    - 2.9.2.3. Diagnosis
    - 2.9.2.4. Differential Diagnosis
    - 2.9.2.5. Treatment
    - 2.9.2.6. Complications
  - 2.9.3. Carcinoid Tumor
    - 2.9.3.1. Epidemiology
    - 2.9.3.2. Clinical Presentation
    - 2.9.3.3. Diagnosis
    - 2.9.3.4. Treatment
    - 2.9.3.5. Post-operative Considerations
  - 2.9.4. Appendicular Mucocele
    - 2.9.4.1. Epidemiology
    - 2.9.4.2. Clinical Presentation
    - 2.9.4.3. Diagnosis
    - 2.9.4.4. Treatment
    - 2.9.4.5. Post-operative Considerations
- 2.10. Current Status of the Pediatric Abdominal Laparoscopy Digestive Laparoscopy Laparoscopic Techniques in Surgery
  - 2.10.1. Laparoscopic Procedures on Children
    - 2.10.1.1. Abdominal Access
    - 2.10.1.2. Devices and Instruments
  - 2.10.2. Ergonomics in Pediatric Abdominal Laparoscopy
  - 2.10.3. Advances in Pediatric Laparoscopy



### Module 3. General and Digestive Pediatric Surgery II

- 3.1. Pediatric Chronic Inflammatory Bowel Disease
  - 3.1.1. Ulcerative Colitis
    - 3.1.1.1. Epidemiology
    - 3.1.1.2. Etiology
    - 3.1.1.3. Pathologic Anatomy
    - 3.1.1.4. Clinical Presentation
    - 3.1.1.5. Diagnosis
    - 3.1.1.6. Medical Treatment
    - 3.1.1.7. Surgical Management
  - 3.1.2. Crohn's Disease
    - 3.1.2.1. Etiology
    - 3.1.2.2. Pathologic Anatomy
    - 3.1.2.3. Clinical Presentation
    - 3.1.2.4. Diagnosis
    - 3.1.2.5. Medical Treatment
    - 3.1.2.6. Surgical Management
  - 3.1.3. Indeterminate Colitis
- 3.2. Short Bowel Syndrome
  - 3.2.1. Causes of Short Bowel Syndrome
  - 3.2.2. Initial Determinants of Intestinal Function
  - 3.2.3. Intestinal Adaptation Process
  - 3.2.4. Clinical Manifestations
  - 3.2.5. Initial Management of the Patient with Short Bowel Syndrome
  - 3.2.6. Autologous Surgical Reconstruction Techniques
- 3.3. Intestinal and Multi-organ Transplant
  - 3.3.1. Intestinal Rehabilitation
  - 3.3.2. Transplant Indications
  - 3.3.3. Surgical Considerations and Transplant Intervention
  - 3.3.4. Immediate Postoperative Complications

- 3.4. Anorectal Atresia and Cloacal Malformations
  - 3.4.1. Anorectal Atresia
    - 3.4.1.1. Embryological Recall
    - 3.4.1.2. Classification
    - 3.4.1.3. Diagnostic Tests
    - 3.4.1.4. Treatment
    - 3.4.1.5. Post-Operative Care
  - 3.4.2. Sewer
    - 3.4.2.1. Embryological Recall
    - 3.4.2.2. Classification
    - 3.4.2.3. Diagnostic Tests
    - 3.4.2.4. Treatment
- 3.5. Hirschsprung's Disease Intestinal Neural Dysplasias and Other Causes of Megacolon Acquired Anorectal Pathology
  - 3.5.1. Hirschsprung's Disease
    - 3.5.1.1. Etiology
    - 3.5.1.2. Clinical Symptoms
    - 3.5.1.3. Diagnosis. Differential Diagnosis
      - 3.5.1.3.1. Abdominal X-ray
      - 3.5.1.3.2. Opaque enema
      - 3.5.1.3.3. Anorectal Manometry
      - 3.5.1.3.4. Rectal Suction Biopsy
    - 3.5.1.4. Physical Examination
    - 3.5.1.5. Treatment
    - 3.5.1.6. Post-surgical Evolution
  - 3.5.2. Intestinal Neural Dysplasias and Other Causes of Megacolon
  - 3.5.3. Acquired Anorectal Pathology
    - 3.5.3.1. Anal Fissure
    - 3.5.3.2. Clinical Symptoms
    - 3.5.3.3. Diagnosis
    - 3.5.3.4. Treatment
- 3.5.4. Perianal Abscesses and Fistulas
  - 3.5.4.1. Clinical Symptoms
  - 3.5.4.2. Treatment
- 3.6. Digestive Functional Tests Anorectal Manometry New Therapies for Study and Treatment of Incontinence and Constipation
  - 3.6.1. Anorectal Manometry
    - 3.6.1.1. Normal Values
    - 3.6.1.2. Anal Inhibitory Reflex
    - 3.6.1.3. Pressure Gradient of the Anal Canal
    - 3.6.1.4. Rectal Tenderness
    - 3.6.1.5. Voluntary Contraction
    - 3.6.1.6. Defecation Maneuver
  - 3.6.2. *Biofeedback*
    - 3.6.2.1. Indications
    - 3.6.2.2. Techniques
    - 3.6.2.3. Initial Findings
  - 3.6.3. Posterior Tibial Nerve Stimulation
    - 3.6.3.1. Indications
    - 3.6.3.2. Technique
    - 3.6.3.3. Initial Findings
- 3.7. Splenic and Pancreatic Pathology. Portal Hypertension
  - 3.7.1. Objectives
  - 3.7.2. Splenic Pathology
    - 3.7.2.1. Anatomy
    - 3.7.2.2. Surgical Indication
      - 3.7.2.2.1. Hematologic Pathology
      - 3.7.2.2.2. Splenic Lesions
    - 3.7.2.3. Pre-operative Considerations
    - 3.7.2.4. Surgical Techniques
    - 3.7.2.5. Post-operative Considerations
    - 3.7.2.6. Complications

- 3.7.3. Pancreatic Pathology
  - 3.7.3.1. Anatomy
  - 3.7.3.2. Surgical Indication
    - 3.7.3.2.1. Congenital Hyperinsulinism
    - 3.7.3.2.2. Pancreatic Pseudocyst
    - 3.7.3.3. Pancreatic Tumors
  - 3.7.3.3. Surgical Techniques
  - 3.7.3.4. Complications
- 3.7.4. Portal Hypertension
  - 3.7.4.1. Portal Hypertension Types
  - 3.7.4.2. Diagnosis
  - 3.7.4.3. Clinical Symptoms
  - 3.7.4.4. Therapy Options
  - 3.7.4.5. Surgical Techniques
  - 3.7.4.6. Prognosis
- 3.8. Hepatobiliary Pathology I. Biliary Tract Atresia Cholestatic Liver Diseases
  - 3.8.1. Objectives
  - 3.8.2. Causes of Jaundice and Cholestasis in Infants
    - 3.8.2.1. Limy Bile Syndrom
    - 3.8.2.2. Alagille's Syndrome
  - 3.8.3. Biliary Tract Atresia
    - 3.8.3.1. Epidemiology
    - 3.8.3.2. Etiopathogenesis
    - 3.8.3.3. Classification
    - 3.8.3.4. Clinical Presentation
    - 3.8.3.5. Diagnosis. Histopathology
    - 3.8.3.6. Kasai Portoenterostomy
    - 3.8.3.7. Post-operative Considerations
    - 3.8.3.8. Medical Treatment. Adjuvant Therapy
    - 3.8.3.9. Complications
    - 3.8.3.10. Prognosis and Results
    - 3.8.3.11. Current News and Interest
- 3.9. Hepatobiliary Pathology II. Choledochal Cyst Pancreatobiliary Malunion Biliary Lithiasis
  - 3.9.1. Objectives
  - 3.9.2. Choledochal Cyst
    - 3.9.2.1. Classification
    - 3.9.2.2. Clinical Presentation
    - 3.9.2.3. Diagnosis
    - 3.9.2.4. Management and Surgical Techniques
    - 3.9.2.5. Complications
    - 3.9.2.6. Special considerations
    - 3.9.2.7. Caroli's Disease and Choledochoceles
    - 3.9.2.8. Prognosis and Long-Term Results
  - 3.9.3. Pancreatobiliary Malunion
  - 3.9.4. Biliary Lithiasis
    - 3.9.4.1. Stone Types
    - 3.9.4.2. Diagnostic Tests
    - 3.9.4.3. Asymptomatic Cholelithiasis
    - 3.9.4.4. Symptomatic Cholelithiasis
    - 3.9.4.5. Surgical Anatomy
    - 3.9.4.6. Surgical Techniques
- 3.10. Pediatric Liver Transplant Current State
  - 3.10.1. Transplant Indications
  - 3.10.2. Contraindications
  - 3.10.3. Donor Considerations
  - 3.10.4. Preoperative preparation
  - 3.10.5. Transplant Procedure
  - 3.10.6. Immunosuppressive Treatment
  - 3.10.7. Immediate Postoperative Complications
  - 3.10.8. Transplant Evolution

## Module 4. Pediatric Fetal and Neonatal Surgery

- 4.1. The Fetus as a Patient
  - 4.1.1. Prenatal Diagnosis. Mother and Fetus Management
  - 4.1.2. Video-endoscopic Fetal Surgery
  - 4.1.3. Fetal Problems Amenable to Prenatal Treatment
  - 4.1.4. Ethical and Legal Considerations
  - 4.1.5. Fetal and Exit Surgery
- 4.2. Pediatric Neonatal Surgery
  - 4.2.1. Functional and Structural Organization of the Pediatric Surgery Unit
  - 4.2.2. Neonatal Surgical Area Skills
  - 4.2.3. Neonatal Intensive Care Units Characteristics
  - 4.2.4. Surgery in Neonatal Units
- 4.3. Congenital Diaphragmatic Hernia (CDH)
  - 4.3.1. Embryology and Epidemiology
  - 4.3.2. Associated Anomalies Genetic Associations
  - 4.3.3. Pathophysiology. Pulmonary Hypoplasia and Hypertension
  - 4.3.4. Prenatal Diagnosis
    - 4.3.4.1. Prognostic Factors
    - 4.3.4.2. Prenatal Care
  - 4.3.5. Postnatal Resuscitation
    - 4.3.5.1. Medical and Ventilatory Treatment. ECMO
  - 4.3.6. Surgical Management
    - 4.3.6.1. Abdominal and Thoracic Approaches
    - 4.3.6.2. Open and Minimally Invasive
    - 4.3.6.3. Diaphragmatic Substitutes
  - 4.3.7. Evolution. Mortality
    - 4.3.7.1. Pulmonary Morbidity
    - 4.3.7.2. Neurological
    - 4.3.7.3. Digestive
    - 4.3.7.4. Osteomuscular
  - 4.3.8. Morgagni's Hernia or Anterior Diaphragmatic Hernia
    - 4.3.8.1. Congenital Diaphragmatic Eventration
- 4.4. Esophageal Atresia Tracheoesophageal Fistula
  - 4.4.1. Embryology. Epidemiology
  - 4.4.2. Clinical Associated Anomalies. Classification
  - 4.4.3. Prenatal and Postnatal Diagnosis
  - 4.4.4. Surgical Management
    - 4.4.4.1. Pre-operative Bronchoscopy
  - 4.4.5. Surgical approaches
    - 4.4.5.1. Thoracotomy
    - 4.4.5.2. Thoracoscopy
  - 4.4.6. Long-gap Esophageal Atresia
    - 4.4.6.1. Treatment Options
    - 4.4.6.2. Elongation
  - 4.4.7. Complications
    - 4.4.7.1. Recurrence of Tracheoesophageal Fistula
    - 4.4.7.2. Stenosis
  - 4.4.8. Secuelas
- 4.5. Congenital Abdominal Wall Defects
  - 4.5.1. Gastroschisis. Incidence
    - 4.5.1.1. Embryology
    - 4.5.1.2. Etiology
    - 4.5.1.3. Prenatal Management
  - 4.5.2. Neonatal Resuscitation
    - 4.5.2.1. Surgical Management
    - 4.5.2.2. Primary Closure
    - 4.5.2.3. Staged Closure
  - 4.5.3. Associated Intestinal Atresia Treatment
    - 4.5.3.1. Evolution
    - 4.5.3.2. Intestinal Morbidity
  - 4.5.4. Omphalocele
    - 4.5.4.1. Incidence
    - 4.5.4.2. Embryology
    - 4.5.4.3. Etiology

- 4.5.5. Prenatal Management
  - 4.5.5.1. Associated Anomalies
  - 4.5.5.2. Genetic Counseling
- 4.5.6. Neonatal Resuscitation
  - 4.5.6.1. Surgical Management
  - 4.5.6.2. Primary Closure
  - 4.5.6.3. Staged Closure
  - 4.5.6.4. Deferred Stage Closure
- 4.5.7. Short and Long-Term Evolution. Survival
- 4.6. Pyloric and Gastric Pathology in the Neonate
  - 4.6.1. Hypertrophic Pyloric Stenosis
    - 4.6.1.1. Etiology
    - 4.6.1.2. Diagnosis
  - 4.6.2. Surgical Approach
    - 4.6.2.1. Open vs. Laparoscopy
  - 4.6.3. Pyloric Atresia
  - 4.6.4. Spontaneous Gastric Perforation
  - 4.6.5. Gastric Volvulus
  - 4.6.6. Gastric Duplication
- 4.7. Duodenal Obstruction
  - 4.7.1. Embryology
    - 4.7.1.1. Etiology
  - 4.7.2. Epidemiology
    - 4.7.2.1. Associated Anomalies
  - 4.7.3. Duodenal Atresia and Stenosis
    - 4.7.3.1. Annular Pancreas
  - 4.7.4. Clinical Presentation
    - 4.7.4.1. Diagnosis
  - 4.7.5. Surgical Management
- 4.8. Congenital Intestinal Obstruction
  - 4.8.1. Jejunoileal Atresia and Stenosis
    - 4.8.1.1. Embryology
    - 4.8.1.2. Incidence
    - 4.8.1.3. Types
  - 4.8.2. Clinical and Radiological Diagnosis
    - 4.8.2.1. Surgical Management
    - 4.8.2.2. Prognosis
  - 4.8.3. Colic Atresia and Stenosis
  - 4.8.4. Meconium Plug Syndrome
    - 4.8.4.1. Left Colon Syndrome
  - 4.8.5. Meconium Ileus
    - 4.8.5.1. Etiopathogenesis
    - 4.8.5.2. Genetics
    - 4.8.5.3. Cystic fibrosis
  - 4.8.6. Simple and Complicated Meconium Ileus
  - 4.8.7. Medical and Surgical Treatment
  - 4.8.8. Complications
- 4.9. Minimally Invasive Neonatal Surgery
  - 4.9.1. Material and General Information
  - 4.9.2. Esophageal Atresia / *Long-Gap* Esophageal Atresia
  - 4.9.3. Neonatal Diaphragmatic Pathology
  - 4.9.4. Duodenal Atresia
  - 4.9.5. Intestinal Atresia
  - 4.9.6. Intestinal Malrotation
  - 4.9.7. Neonatal Ovarian Cysts
  - 4.9.8. Other Specifications
- 4.10. Necrotizing Enterocolitis
  - 4.10.1. Epidemiology
    - 4.10.1.1. Pathophysiology
  - 4.10.2. Classification
    - 4.10.2.1. Prognostic Factors
  - 4.10.3. Clinical diagnosis
    - 4.10.3.1. Differential Diagnosis
  - 4.10.4. Spontaneous Bowel Perforation
  - 4.10.5. Medical Treatment
    - 4.10.5.1. Surgical Management
  - 4.10.6. Evolution. Prevention

## Module 5. Pediatric Head and Neck Surgery

- 5.1. Craniofacial Malformations I. Unilateral and Bilateral Cleft Lip
  - 5.1.1. Facial Development
  - 5.1.2. Unilateral and Bilateral Cleft Lip
  - 5.1.3. Embryology and Anatomy of Malformation
  - 5.1.4. Classification
  - 5.1.5. Pre-surgical Treatment
  - 5.1.6. Primary Surgical Techniques, Timing
  - 5.1.7. Complications and Treatment, Follow-up
- 5.2. Craniofacial Malformations II. Cleft Palate
  - 5.2.1. Cleft Palate
  - 5.2.2. Embryology and Anatomy of Malformation
  - 5.2.3. Classification
  - 5.2.4. Treatment, Techniques and Timing
  - 5.2.5. Complications and Treatment
  - 5.2.6. Monitoring
- 5.3. Craniofacial Malformations III. Velopharyngeal Insufficiency
  - 5.3.1. Velopharyngeal Insufficiency
  - 5.3.2. Testing and Treatment
  - 5.3.3. Syndromes (cross, Tracher-Collins, Pierre Robin sequence, etc.)
  - 5.3.4. Sequelae Surgery
  - 5.3.5. Multidisciplinary Teams and Ongoing Treatment
  - 5.3.6. Rehabilitation, Orthodontics and Orthopedics
  - 5.3.7. Monitoring
- 5.4. Surgical Pathology of the Oro-nasopharyngeal Cavity
  - 5.4.1. Dermoid Cyst; Glioma and Encephalocele; Choanal Atresia
  - 5.4.2. Juvenile Angiofibroma
  - 5.4.3. Retropharyngeal and Peripharyngeal Abscess; Ludwig's Angina
  - 5.4.4. Ankyloglossia, Macroglossia
  - 5.4.5. Epulis, Mucocele
  - 5.4.6. Vascular Malformations (Hemangioma, Lymphangioma)
- 5.5. Salivary Gland Pathologies
  - 5.5.1. Inflammatory Diseases
  - 5.5.2. Sialoadenitis
  - 5.5.3. Cystic Disease: Ranula
  - 5.5.4. Malignant and Non-malignant Neoplasms
  - 5.5.5. Vascular Malformations (Hemangioma, Lymphangioma)
- 5.6. Lymph Node Pathology
  - 5.6.1. General Approach to Cervical Adenopathies
  - 5.6.2. Acute Lymphadenitis Atypical Mycobacterial Adenitis. Cat Scratch Disease
  - 5.6.3. Lymphomas
- 5.7. Thyroid Disease
  - 5.7.1. Embryology and Anatomy
  - 5.7.2. Surgical Considerations
  - 5.7.3. Thyroglossal Cyst and Juvenile Ectopic Thyroid
  - 5.7.4. Hypo and Hyperthyroidism
  - 5.7.5. Thyroid Neoplasia
- 5.8. Parathyroid Pathology
  - 5.8.1. Embryology and Anatomy
  - 5.8.2. Surgical Considerations
  - 5.8.3. Functional Tests
  - 5.8.4. Neonatal and Familial Hyperparathyroidism
  - 5.8.5. Secondary Hyperparathyroidism
  - 5.8.6. Parathyroid Adenomas
- 5.9. Cysts and Cervical Sinuses
  - 5.9.1. Embryology
  - 5.9.2. 1st Branchial Arch Anomalies and Clefting
  - 5.9.3. Abnormalities of the 2nd Branchial Arch and Cleft Gills
  - 5.9.4. Abnormalities of the 2nd Branchial Arch and Cleft Gills
  - 5.9.5. Abnormalities of the 4th Branchial Arch and Cleft Gills
  - 5.9.6. Dermoid Cysts Preauricular Cysts and Fistulas
  - 5.9.7. Thymic Cysts
  - 5.9.8. Jugular Venous Aneurysms




- 5.10. Pinna Malformations
  - 5.10.1. Aetiopathogenesis and Pathophysiology
  - 5.10.2. Malformation Types
  - 5.10.3. Preoperative Evaluation
  - 5.10.4. Surgical Management
  - 5.10.5. Non-Surgical Treatment

## Module 6. Pediatric Surgery Airway and Chest

- 6.1. Malformations and Deformities of the Thoracic Wall I. *Pectus Carinatum*. Poland Syndrome and Others
  - 6.1.1. Embryology and Thoracic Wall Anatomy
  - 6.1.2. Classification
  - 6.1.3. Complement Testing
  - 6.1.4. Pectus Carinatum Orthopedic Treatment
  - 6.1.5. Poland Syndrome
- 6.2. Thoracic Wall Malformations and Deformities II. *Pectus Excavatum*
  - 6.2.1. *Pectus Excavatum*
  - 6.2.2. Surgical Management
    - 6.2.2.1. Open Surgery Techniques
    - 6.2.2.2. Minimally Invasive Surgery Techniques
    - 6.2.2.3. Other Surgical Alternatives
  - 6.2.3. Non-surgical Alternatives. Complications and Follow-up
- 6.3. Mediastinal Tumors and Cysts
  - 6.3.1. Embryology
  - 6.3.2. Diagnosis
  - 6.3.3. Classification
  - 6.3.4. General Management
  - 6.3.5. Specific Characteristics and Management
- 6.4. Bronchopulmonary Malformations. Congenital Lobar Emphysema. Bronchogenic Cysts. Pulmonary Sequestration Cystic Adenomatoid Malformation
  - 6.4.1. Embryology
  - 6.4.2. Prenatal Diagnosis and Classification of Congenital Bronchopulmonary Malformations
    - 6.4.3. Postnatal Management of Congenital Bronchopulmonary Malformations
    - 6.4.4. Surgical Management of Congenital Bronchopulmonary Malformations
    - 6.4.5. Conservative Treatment of Congenital Bronchopulmonary Malformations
- 6.5. Pleuropulmonary Pathology. Surgical Treatment of Complicated Pneumonia. Metastatic Lung Disease
  - 6.5.1. Objectives
  - 6.5.2. Pleuropulmonary Pathology. Pneumothorax
    - 6.5.2.1. Introduction
    - 6.5.2.2. Classification
    - 6.5.2.3. Diagnosis
    - 6.5.2.4. Treatment
    - 6.5.2.5. Techniques in Recurrent Pneumothorax or Presence of Bullae
    - 6.5.2.6. News and Current Interest
  - 6.5.3. Complicated Pneumonia
    - 6.5.3.1. Introduction
    - 6.5.3.2. Diagnosis
    - 6.5.3.3. Surgical Indications
    - 6.5.3.4. Endothoracic Drainage Placement +/- Fibrinolysis
    - 6.5.3.5. Thoracoscopy
  - 6.5.4. Chylothorax
    - 6.5.4.1. Introduction
    - 6.5.4.2. Medical Treatment
    - 6.5.4.3. Drainage Indications
    - 6.5.4.4. Pleurodesis Types
    - 6.5.4.5. News and Current Interest
  - 6.5.5. Metastatic Pulmonary Disease
    - 6.5.5.1. Introduction
    - 6.5.5.2. Indications
    - 6.5.5.3. Thoracotomy
    - 6.5.5.4. Thoracoscopy
    - 6.5.5.5. Mapping Methods. Nuclear Medicine. Indocyanine Green
    - 6.5.5.6. News and Current Interest

- 6.6. Bronchoscopy in Pediatric Surgery
  - 6.6.1. Fibrobronchoscopy
    - 6.6.1.1. Technique
    - 6.6.1.2. Indications
    - 6.6.1.3. Diagnostic and Follow-Up Procedures in Pediatric
  - 6.6.2. Rigid Bronchoscopy
    - 6.6.2.1. Technique
    - 6.6.2.2. Indications
    - 6.6.2.3. Diagnostic and Follow-Up Procedures in Pediatric
- 6.7. Indications and Techniques to Perform: Open and Closed Surgical Approaches to the Thorax. Pediatric Thoracoscopy
  - 6.7.1. Open Surgical Approaches
    - 6.7.1.1. Types
    - 6.7.1.2. Techniques
    - 6.7.1.3. Indications
  - 6.7.2. Pleural Drain
    - 6.7.2.1. Indications
    - 6.7.2.2. Techniques
    - 6.7.2.3. Chest Tube Management
  - 6.7.3. Pediatric Thoracoscopy
    - 6.7.3.1. History
    - 6.7.3.2. Instruments
    - 6.7.3.3. Patient Positioning and Techniques
    - 6.7.3.4. Advances
- 6.8. Airway Assessment
  - 6.8.1. Anatomy and Physiology
  - 6.8.2. Semiology
  - 6.8.3. Diagnostic Techniques. Endoscopy CT: 3D Reconstruction
  - 6.8.4. Endoscopic Treatments. Laser
- 6.9. Pediatric Laryngeal Pathology
  - 6.9.1. Laryngomalacia
  - 6.9.2. Subglottic Stenosis
  - 6.9.3. Laryngeal Web



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- 6.9.4. Vocal Cord Paralysis
  - 6.9.5. Subglottic Hemangioma
  - 6.9.6. Slit Lamp
  - 6.10. Pediatric Tracheal Pathology
    - 6.10.1. Tracheomalacia
    - 6.10.2. Tracheal Stenosis
    - 6.10.3. Vascular Rings
    - 6.10.4. Airway Tumors

## **Module 7. Pediatric Urology I. Upper Urinary Tract Pathology and Surgical Techniques**

- 7.1. Renal Abnormalities. Horseshoe Kidney
  - 7.1.1. Renal Abnormalities of Position, Shape and Fusion
    - 7.1.1.1. Simple Renal Ectopia or Ectopic Kidney
    - 7.1.1.2. Crossed Renal Ectopia
    - 7.1.1.3. Horseshoe Kidney
  - 7.1.2. Renal Abnormalities of Number and Size
    - 7.1.2.1. Renal Agenesis
    - 7.1.2.2. Small kidney
    - 7.1.2.3. Megacaliosis
  - 7.1.3. Renal Cystic Abnormalities
    - 7.1.3.1. Autosomal Dominant Polycystic Kidney Disease (adult)
    - 7.1.3.2. Autosomal Recessive Polycystic Kidney Disease (Infant)
    - 7.1.3.3. Malformative Syndromes with Renal Cysts
      - 7.1.3.3.1. Tuberous Sclerosis
      - 7.1.3.3.2. Von Hippel-Lindau Disease
    - 7.1.3.4. Dysplastic Multicystic Kidney
    - 7.1.3.5. Cystic Nephroma
    - 7.1.3.6. Simple Renal Cyst
    - 7.1.3.7. Acquired Cystic Kidney Disease
    - 7.1.3.8. Calyceal Diverticulum

- 7.2. Pyeloureteral Stenosis
  - 7.2.1. Introduction
  - 7.2.2. Embryology
  - 7.2.3. Etiopathogenesis
    - 7.2.3.1. Intrinsic Factors:
    - 7.2.3.2. Extrinsic Factors
    - 7.2.3.3. Functional factors
  - 7.2.4. Clinical Symptoms
  - 7.2.5. Diagnosis
    - 7.2.5.1. Ultrasound
    - 7.2.5.2. CAT
    - 7.2.5.3. Magnetic Resonance
    - 7.2.5.4. Renogram
  - 7.2.6. Indications
  - 7.2.7. Treatment
    - 7.2.7.1. Open Pyeloplasty
      - 7.2.7.1.1. Anderson-hynes
      - 7.2.7.1.2. Other Techniques
    - 7.2.7.2. Transperitoneal Pyeloplasty
      - 7.2.7.2.1. Transperitoneal Pyeloplasty by Dropping the Colon
      - 7.2.7.2.2. Transmesocolic Pyeloplasty
      - 7.2.7.2.3. *Vascular Hitch*
    - 7.2.7.3. Retroperitoneal Pyeloplasty
      - 7.2.7.3.1. Retroperitoneal Pyeloplasty
      - 7.2.7.3.2. Laparoscopic Retroperitoneal Pyeloplasty
- 7.3. Ureteral Duplicity. Ureterocele. Ectopic ureter
  - 7.3.1. Ureteral Duplicity
  - 7.3.2. Ureterocele
  - 7.3.3. Ectopic ureter
  - 7.3.4. Contributions of Endourology
- 7.4. Obstructive Megaureter
  - 7.4.1. Incidence
  - 7.4.2. Etiopathogenesis
  - 7.4.3. Pathophysiology
  - 7.4.4. Diagnosis
    - 7.4.4.1. Ultrasound
    - 7.4.4.2. V.C.U.G
      - 7.4.4.2.1. Diuretic Renogram (MAG)
      - 7.4.4.2.2. Other Diagnostic Tests
  - 7.4.5. Differential Diagnosis
    - 7.4.5.1. Treatment
    - 7.4.5.2. Conservative Management
    - 7.4.5.3. Surgical Management
      - 7.4.5.3.1. Ureterostomy
      - 7.4.5.3.2. Refluxing Ureteral Reimplantation
      - 7.4.5.3.3. Ureteral Catheter Placement
    - 7.4.5.4. Ureteral Reimplantation
      - 7.4.5.4.1. Endourological Treatment
      - 7.4.5.4.2. Postoperative Aftercare
- 7.5. Vesicoureteral Reflux
  - 7.5.1. Definition, Types and Classification of Vesicoureteric Reflux (VUR)
  - 7.5.2. Epidemiology of Primary VUR
    - 7.5.2.1. Prevalence of VUR
    - 7.5.2.2. Urinary Tract Infections and VUR
    - 7.5.2.3. VUR Nephropathy
    - 7.5.2.4. Vesicoureteral Reflux and End Stage Renal Disease (ESRD)
  - 7.5.3. Ureterovesical Junction Embryology
  - 7.5.4. VUR Pathophysiology
    - 7.5.4.1. Primary Vesicoureteral Reflux
    - 7.5.4.2. VUR / Urinary Tract Infection / Kidney Damage

- 7.5.5. Clinical diagnosis of VUR
  - 7.5.5.1. Prenatal Hydronephrosis
  - 7.5.5.2. Urinary Tract Infections
- 7.5.6. Diagnostic Imaging of the VUR
  - 7.5.6.1. Serial Voiding Cystourethrogram. (SVCU)
  - 7.5.6.2. Direct Cystogram (DRC)
  - 7.5.6.3. Indirect Cystogram (IRC)
  - 7.5.6.4. Voiding Cystourethrogram (VGUC)
  - 7.5.6.5. Renal Ultrasound Scan
  - 7.5.6.6. Nuclear medicine
- 7.5.7. VUR Treatment Options
  - 7.5.7.1. Observational
  - 7.5.7.2. Antibiotic Prophylaxis
  - 7.5.7.3. Surgical treatment: Open Surgery, Endoscopic Surgery, Laparoscopic/Robotic Surgery
- 7.6. Renal Lithiasis
  - 7.6.1. Epidemiology and Risk Factors
  - 7.6.2. Clinical Introduction and Diagnosis
    - 7.6.2.1. Clinical Presentation
    - 7.6.2.2. Diagnosis
  - 7.6.3. Treatment
    - 7.6.3.1. Acute Episode Treatment
    - 7.6.3.2. Medical Treatment
    - 7.6.3.3. Surgical Management
      - 7.6.3.3.1. Extracorporeal Shock Wave Lithotripsy
      - 7.6.3.3.2. Percutaneous Nephrolithotomy
      - 7.6.3.3.3. Ureterorenoscopy
      - 7.6.3.3.4. Open, Laparoscopic and Robotic Surgery
  - 7.6.4. Long Term Follow-up and Recurrence Prevention
- 7.7. Renal Transplant
  - 7.7.1. Renal Transplant Surgery
    - 7.7.1.1. Kidney Procurement
      - 7.7.1.1.1. Multi-organ (Cadaveric Donor)
      - 7.7.1.1.2. Living Donor Nephrectomy
    - 7.7.1.2. Bench Surgery
    - 7.7.1.3. Renal Implant
    - 7.7.1.4. Surgical complications
  - 7.7.2. Factors Affecting Renal Graft Survival
    - 7.7.2.1. Donor
      - 7.7.2.1.1. Donor Source
      - 7.7.2.1.2. Donor Age
      - 7.7.2.1.3. Histocompatibility
    - 7.7.2.2. Receptor
      - 7.7.2.2.1. Recipient's Age
      - 7.7.2.2.2. Early Transplant (Pre-Dialysis)
      - 7.7.2.2.3. Urological Pathology
      - 7.7.2.2.4. Previous Vascular Problems
      - 7.7.2.2.5. Primary Kidney Disease
    - 7.7.2.3. Delayed Initial Graft Function
    - 7.7.2.4. Immunosuppressive Treatments
    - 7.7.2.5. Rejection
  - 7.7.3. Renal Transplant Results
    - 7.7.3.1. Short and Long-Term Graft Survival
    - 7.7.3.2. Morbidity and Mortality
  - 7.7.4. Graft Loss
    - 7.7.4.1. Transplactectomy
  - 7.7.5. Kidney Transplant Combined with Other Organs
    - 7.7.5.1. Hepatorenal Transplant
    - 7.7.5.2. Cardiorenal Transplant
  - 7.7.6. Controversies
  - 7.7.7. Future Perspectives Challenges

- 7.8. Current Status of Transperitoneal Urological Laparoscopy
  - 7.8.1. Transperitoneal Urological Laparoscopy
  - 7.8.2. Surgical Techniques
    - 7.8.2.1. Nephrectomy
    - 7.8.2.2. Heminephrectomy
    - 7.8.2.3. Pyeloplasty
    - 7.8.2.4. Vesicoureteral Reflux Correction
    - 7.8.2.5. Congenital Obstructive Megaureter
    - 7.8.2.6. Undescended Testicle Sexual Differentiation Disorder
- 7.9. Pediatric Percutaneous Kidney Surgery
  - 7.9.1. Endourology
  - 7.9.2. Historical Recollection
  - 7.9.3. Objectives Presentation
  - 7.9.4. Surgical Technique
    - 7.9.4.1. Surgical Planning
    - 7.9.4.2. Patient Positioning
    - 7.9.4.3. Percutaneous Puncture Details
    - 7.9.4.4. Access Methods
  - 7.9.5. Surgical Indications
    - 7.9.5.1. Renal Lithiasis
    - 7.9.5.2. Recurrent Pyeloureteral Stenosis
    - 7.9.5.3. Other Specifications
  - 7.9.6. Literature Review
    - 7.9.6.1. Pediatric Urology Experience
    - 7.9.6.2. Instrumentation Miniaturization
    - 7.9.6.3. Current Indications
- 7.10. Pediatric Pneumovesicoscopy and Retroperitoneoscopy
  - 7.10.1. Pneumovesicoscopy
  - 7.10.2. Technique
  - 7.10.3. Vesical Diverticulectomy
  - 7.10.4. Ureteral Reimplantation
  - 7.10.5. Bladder Neck Surgery
  - 7.10.6. Retroperitoneoscopy

## Module 8. Pediatric Urology II. Lower Urinary Tract Pathology

- 8.1. Non-neurogenic Bladder Dysfunction Urinary Incontinence
  - 8.1.1. Non-neuropathic Gastrointestinal Dysfunction
    - 8.1.1.1. Epidemiology
    - 8.1.1.2. Etiopathogenesis
  - 8.1.2. Lower Urinary Tract Dysfunction Patterns
    - 8.1.2.1. LUTD Fundamental Patterns
    - 8.1.2.2. Postponing Patient
    - 8.1.2.3. Other LUTD Patterns
  - 8.1.3. Associated Problems
    - 8.1.3.1. Vesicoureteral Reflux and Urinary Tract Infection
    - 8.1.3.2. Psychosocial Problems
  - 8.1.4. Diagnostic Protocol
    - 8.1.4.1. Medical History
    - 8.1.4.2. Physical Examination
    - 8.1.4.3. Micturition Diary
    - 8.1.4.4. Laboratory Tests
    - 8.1.4.5. Imaging Tests
    - 8.1.4.6. Non-invasive Urodynamic Tests
    - 8.1.4.7. Invasive Urodynamic Tests
    - 8.1.4.8. Symptomatology Grading
  - 8.1.5. Therapeutic Approach
    - 8.1.5.1. Urotherapy
    - 8.1.5.2. Pharmacotherapy
    - 8.1.5.3. Botulinum toxin
    - 8.1.5.4. Intermittent Catheterizations
    - 8.1.5.5. ICCS Therapeutic Recommendations
- 8.2. Neurogenic Bladder
  - 8.2.1. Urinary Tract
    - 8.2.1.1. Innervation
    - 8.2.1.2. Operation
    - 8.2.1.3. Neuropathic Bladder Pathophysiology

- 8.2.2. Neuropathic Bladder
  - 8.2.2.1. Prevalence and Etiology
  - 8.2.2.2. Urinary Tract Function
- 8.2.3. Neuropathic Bladder Pathophysiology
  - 8.2.3.1. Diagnosis
  - 8.2.3.2. Suspected Diagnosis
  - 8.2.3.3. Ultrasound
  - 8.2.3.4. SVCU and DMSA
- 8.2.4. Urodynamic Tests
  - 8.2.4.1. Flowmetry
  - 8.2.4.2. Cystomanometry
  - 8.2.4.3. Pressure-flow Test
- 8.2.5. Medical treatment
  - 8.2.5.1. Anticholinergics
- 8.3. Urinary Diversion in Pediatric Age
  - 8.3.1. Pathophysiology of Kidney Damage in the Pediatric Age Associated with Uropathies
  - 8.3.2. Dysplasia
    - 8.3.2.1. Congenital Urinary Obstruction
    - 8.3.2.2. Acquired Acute/Chronic Urinary Obstruction
    - 8.3.2.3. Role of Reflux/Scarring Nephropathy Associated with Stroke
    - 8.3.2.4. Secondary Damage to Bladder Dysfunction
  - 8.3.3. Surgical Urinary Diversion
    - 8.3.3.1. Anatomy
    - 8.3.3.2. Surgical Techniques
    - 8.3.3.3. Endourological Techniques
    - 8.3.3.4. Percutaneous Techniques
  - 8.3.4. Clinical Management
    - 8.3.4.1. Initial Management
    - 8.3.4.2. Care and Diversion
  - 8.3.5. Long-Term Results
- 8.4. Pediatric Cystoscopy and Ureteroscopy
  - 8.4.1. Cystoscopes
    - 8.4.1.1. Basic Components
  - 8.4.2. Cystourethroscopy
    - 8.4.2.1. Most Common Types
  - 8.4.3. Ureteroscopes
    - 8.4.3.1. Basic Components
    - 8.4.3.2. Cystourethroscopy
    - 8.4.3.3. Most Common Types
- 8.5. Female Genital Abnormalities
  - 8.5.1. Embryological Recall
  - 8.5.2. Congenital Disorders
    - 8.5.2.1. Genital Tubercle-dependent Alterations
    - 8.5.2.2. Labioscrotal Fold-dependent Alterations
    - 8.5.2.3. Urogenital Sinus-dependent Alterations
    - 8.5.2.4. Development-dependent Mullerian Structure Alterations
  - 8.5.3. Acquired Alterations
  - 8.5.4. Urinary Tract-dependent Alterations
- 8.6. Urogenital Sinus
  - 8.6.1. Embryological Recall
  - 8.6.2. Urogenital Sinus
    - 8.6.2.1. The Cloaca
    - 8.6.2.2. In Differential Sex Development (DSD)
    - 8.6.2.3. Other Entities
  - 8.6.3. Urogenital Sinus Treatment
- 8.7. Exstrophy-Epispadias Complex
  - 8.7.1. Exstrophy-Epispadias Complex
    - 8.7.1.1. EEC History
    - 8.7.1.2. Epidemiology and Current Situation
    - 8.7.1.3. Embryology and Associated Abnormalities
    - 8.7.1.4. Anatomical Description and EEC Variants

- 8.7.2. Diagnostic Approach
  - 8.7.2.1. Antenatal Diagnosis
  - 8.7.2.2. Clinical diagnosis
  - 8.7.2.3. Complementary Tests and Examinations According to their Profitability
- 8.7.3. Clinical Management
  - 8.7.3.1. Multidisciplinary Team
  - 8.7.3.2. Prenatal Counseling
  - 8.7.3.3. Initial management of the EEC patient
    - 8.7.3.3.1. Comparative Analysis of Different Surgical Approaches
  - 8.7.3.4. Full Primary Closure
  - 8.7.3.5. Stage Closure
  - 8.7.3.6. Primary Deferred Closing
  - 8.7.3.7. Long-term Management of the EEC Patient
- 8.7.4. Opportunities for New Knowledge Development
- 8.8. Urethral Malformations. Posterior Urethral Valves
  - 8.8.1. Posterior Urethral Valves
    - 8.8.1.1. Epidemiology
    - 8.8.1.2. Embryology and Classification
    - 8.8.1.3. Pathophysiology
    - 8.8.1.4. Clinical Introduction and Diagnosis
    - 8.8.1.5. Treatment
    - 8.8.1.6. Prognosis
    - 8.8.1.7. PUV and Kidney Transplant
  - 8.8.2. Anterior Urethral Valves
    - 8.8.2.1. Classification
    - 8.8.2.2. Embryology and Etiology
    - 8.8.2.3. Clinical Presentation
    - 8.8.2.4. Diagnosis
    - 8.8.2.5. Treatment
  - 8.8.3. Urethral Stricture
    - 8.8.3.1. Etiology
    - 8.8.3.2. Clinical Presentation
    - 8.8.3.3. Diagnosis
    - 8.8.3.4. Treatment
- 8.9. Bladder Diverticulum, Urachal Abnormalities and other Bladder Malformations
  - 8.9.1. Bladder Diverticulum
    - 8.9.1.1. Etiology and Associated Syndromes
    - 8.9.1.2. Clinical Presentation
    - 8.9.1.3. Diagnosis
    - 8.9.1.4. Treatment
  - 8.9.2. Urachal Abnormalities
    - 8.9.2.1. Patent Urachus
    - 8.9.2.2. Urachal Sinus
    - 8.9.2.3. Urachal Cyst
    - 8.9.2.4. Urachal Diverticulum
    - 8.9.2.5. Diagnosis
    - 8.9.2.6. Treatment
  - 8.9.3. Megabladder
  - 8.9.4. Bladder Hypoplasia
  - 8.9.5. Bladder Duplicity
  - 8.9.6. Bladder Agenesis
  - 8.9.7. Other Bladder Abnormalities
- 8.10. Pediatric Enuresis Management Protocol
  - 8.10.1. Definitions
  - 8.10.2. Pathophysiology
  - 8.10.3. Comorbidities
  - 8.10.4. Examinations
    - 8.10.4.1. Medical History
    - 8.10.4.2. Physical Examination
    - 8.10.4.3. Complementary Tests
  - 8.10.5. Treatment
    - 8.10.5.1. Indications
    - 8.10.5.2. General Recommendations
    - 8.10.5.3. Treatment Algorithms
    - 8.10.5.4. Therapy Options




**Module 9. Pediatric Plastic Surgery**

- 9.1. Vascular Anomalies. Vascular Tumours
  - 9.1.1. Classification
  - 9.1.2. Benign Vascular Tumors
  - 9.1.3. Vascular Tumors of Aggressive Behavior or Potentially Malignant
  - 9.1.4. Malign Vascular Tumors
- 9.2. Vascular Anomalies. Vascular Malformations
  - 9.2.1. Classification
  - 9.2.2. Capillary Malformations and Associated Syndromes
  - 9.2.3. Venous Malformations and Associated Syndromes
  - 9.2.4. Arteriovenous Malformations and Associated Syndromes
  - 9.2.5. Lymphatic Malformations and Associated Syndromes
- 9.3. Childhood Burns
  - 9.3.1. Medical History
  - 9.3.2. First Aid
  - 9.3.3. Evaluation and Initial Management
  - 9.3.4. Ambulatory Management
  - 9.3.5. Hospital Management
  - 9.3.6. Surgical Treatment
  - 9.3.7. After-effects
- 9.4. Congenital Hand Anomalies
  - 9.4.1. Embryonic Development
  - 9.4.2. Classification
  - 9.4.3. Polydactyly
  - 9.4.4. Syndactyly
- 9.5. Hand Trauma
  - 9.5.1. Epidemiology
  - 9.5.2. Exploration
  - 9.5.3. Basis of Treatment
  - 9.5.4. Digital Trauma
- 9.6. Skin Pathology and its Appendages
  - 9.6.1. Skin Anatomy
  - 9.6.2. Congenital Melanocytic Nevus
  - 9.6.3. Acquired Melanocytic Nevus
  - 9.6.4. Melanoma
  - 9.6.5. Non-pigmented Skin Lesions
- 9.7. Breast Pathology in Childhood and Adolescence
  - 9.7.1. Embryonic Development
  - 9.7.2. Classification
  - 9.7.3. Congenital and Developmental Disorders (Alterations in Size, Number and Asymmetries)
  - 9.7.4. Acquired Disorders (Functional, Inflammatory and Tumor Pathology)
- 9.8. Scar Sequelae Management
  - 9.8.1. Scar and Sequelae
  - 9.8.2. Healing Phases
  - 9.8.3. Abnormal Scarring
  - 9.8.4. Scar sequelae Treatment
- 9.9. Skin Coverage
  - 9.9.1. Types of Wounds
  - 9.9.2. Types of Closure
  - 9.9.3. Skin Flaps and Grafts
  - 9.9.4. Tissue expansion
  - 9.9.5. Negative Pressure Therapy
  - 9.9.6. Dermal Substitutes
- 9.10. Special Acquired Skin and Deep Tissue Lesions
  - 9.10.1. Extravasations
  - 9.10.2. Necrotizing Fasciitis
  - 9.10.3. Compartment Syndrome

## Module 10. Pediatric Oncological Surgery

- 10.1. Tumors in Pediatric Patients
  - 10.1.1. Epidemiology
  - 10.1.2. Etiology
  - 10.1.3. Diagnosis
  - 10.1.4. Tumor Staging
  - 10.1.5. Therapeutic Principles: Surgery, Chemotherapy, Radiotherapy and Immunotherapy
  - 10.1.6. Future Therapies and Challenges
- 10.2. Wilms Tumor. Other Renal Tumors
  - 10.2.1. Wilms Tumor
    - 10.2.1.1. Epidemiology
    - 10.2.1.2. Clinical Symptoms
    - 10.2.1.3. Diagnosis
    - 10.2.1.4. Staging. Umbrella Protocol
    - 10.2.1.5. Treatment
    - 10.2.1.6. Prognosis
  - 10.2.2. Other Renal Tumors
    - 10.2.2.1. Clear Cell Sarcoma
    - 10.2.2.2. Rhabdoid Tumor
    - 10.2.2.3. Renal Cell Carcinoma
    - 10.2.2.4. Congenital Mesoblastic Nephroma
    - 10.2.2.5. Cystic Nephroma
    - 10.2.2.6. Partially Differentiated Cystic Nephroblastoma
- 10.3. Neuroblastoma
  - 10.3.1. Epidemiology
  - 10.3.2. Histopathology and Classification Molecular Biology
  - 10.3.3. Clinical Presentation. Syndromes Associated
  - 10.3.4. Diagnostics: Laboratory and Imaging Techniques
  - 10.3.5. Staging and Risk Group
  - 10.3.6. Multidisciplinary Treatment: Chemotherapy, Surgery, Radiotherapy, Immunotherapy. New Strategies
  - 10.3.7. Response Evaluation
  - 10.3.8. Prognosis



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- 10.4. Benign and Malignant Liver Tumors
    - 10.4.1. Diagnosis of Liver Masses
    - 10.4.2. Benign Hepatic Tumors
      - 10.4.2.1. Hepatic Hemangioma in Infancy
      - 10.4.2.2. Mesenchymal Hamartoma
      - 10.4.2.3. Focal Nodular Hyperplasia
      - 10.4.2.4. Adenoma
    - 10.4.3. Malignant Liver Tumors
      - 10.4.3.1. Hepatoblastoma
      - 10.4.3.2. Hepatocellular Carcinoma
      - 10.4.3.3. Hepatic Angiosarcoma
      - 10.4.3.4. Other Hepatic Sarcomas
  - 10.5. Pediatric Sarcomas
    - 10.5.1. Initial Classification
    - 10.5.2. Rhabdomyosarcomas
      - 10.5.2.1. Epidemiology
      - 10.5.2.2. Risk Factors
      - 10.5.2.3. Histopathology
      - 10.5.2.4. Clinical Symptoms
      - 10.5.2.5. Diagnosis
      - 10.5.2.6. Staging
      - 10.5.2.7. Treatment
      - 10.5.2.8. Prognosis
    - 10.5.3. Non-rhabdomyosarcoma
      - 10.5.3.1. Synovial Sarcoma
      - 10.5.3.2. Infantile fibrosarcoma
      - 10.5.3.3. Malignant Peripheral Nerve Sheath Tumor, Malignant Schwannoma or Neurofibrosarcoma
      - 10.5.3.4. Dermatofibrosarcoma Protuberans
      - 10.5.3.5. Desmoplastic Small Round Cell Tumor
      - 10.5.3.6. Liposarcomas

- 10.5.3.7. Leiomyosarcoma
  - 10.5.3.8. Angiosarcoma
  - 10.5.3.9. Solitary Fibrous Tumor
  - 10.5.3.10. Undifferentiated Soft Tissue Sarcoma
  - 10.5.3.11. Inflammatory Myofibroblastic Sarcoma
  - 10.5.3.12. Others
  - 10.5.4. Bone Sarcomas of Extraosseous Location
  - 10.6. Gonadal Tumors
    - 10.6.1. Testicular Tumors
      - 10.6.1.1. Epidemiology
      - 10.6.1.2. Clinical Symptoms
      - 10.6.1.3. Diagnosis
      - 10.6.1.4. Analytical Determinations Tumor Markers
      - 10.6.1.5. Imaging Tests
      - 10.6.1.6. Staging
      - 10.6.1.7. Classification
      - 10.6.1.8. Treatment
      - 10.6.1.9. Prognosis
      - 10.6.1.10. Histopathology
      - 10.6.1.11. Germ Cell Tumors
      - 10.6.1.12. Stromal Tumors
      - 10.6.1.13. Metastatic Tumors
      - 10.6.1.14. Paratesticular Tumors
    - 10.6.2. Ovarian Tumors
      - 10.6.2.1. Epidemiology
      - 10.6.2.2. Clinical Symptoms
      - 10.6.2.3. Diagnosis
      - 10.6.2.4. Analytical Determinations Tumor Markers
      - 10.6.2.5. Imaging Tests
      - 10.6.2.6. Staging
      - 10.6.2.7. Classification
      - 10.6.2.8. Treatment
      - 10.6.2.9. Prognosis
      - 10.6.2.10. Histopathology
      - 10.6.2.11. Mature Teratoma
      - 10.6.2.12. Gonadoblastoma
      - 10.6.2.13. Immature Teratoma
      - 10.6.2.14. Endodermal sinus tumor
      - 10.6.2.15. Choriocarcinoma
      - 10.6.2.16. Embryonal Carcinoma
      - 10.6.2.17. Dysgerminoma
      - 10.6.2.18. Mixed Germ Cell Tumors
  - 10.6.3. Fertility Preservation in Pediatric Oncology Patients
    - 10.6.3.1. Gonadotoxic Treatments
    - 10.6.3.2. Chemotherapy
    - 10.6.3.3. Radiotherapy
    - 10.6.3.4. Preservation Techniques
    - 10.6.3.5. Ovarian Suppression
    - 10.6.3.6. Oophoropexy or Ovarian Transposition
    - 10.6.3.7. Ovarian Cryopreservation
  - 10.6.4. Combined Technique
- 10.7. Surgical Support in Pediatric Hemato-oncology
  - 10.7.1. Pediatric Hematooncologic Diseases for the Pediatric Surgeon
  - 10.7.2. Biopsies
    - 10.7.2.1. Types
    - 10.7.2.2. Incisional and Excisional Biopsy Techniques
    - 10.7.2.3. Tru-cut
    - 10.7.2.4. Coaxial Needle
    - 10.7.2.5. Ultrasound for Biopsy in Pediatric Oncology
  - 10.7.3. Enteral and Parenteral Nutrition in the Oncology Patient
  - 10.7.4. Vascular Access
    - 10.7.4.1. Classification
    - 10.7.4.2. Ultrasound-guided Placement Technique for Vascular Accesses
  - 10.7.5. Surgical Emergencies in the Immunocompromised Patient: Neutropenic Enterocolitis. Hemorrhagic Cystitis

## 10.8. Bone Tumors

### 10.8.1. Classification

#### 10.8.1.1. Benign Bone Tumors

##### 10.8.1.1.1. Epidemiology

##### 10.8.1.1.2. Clinical Manifestations

##### 10.8.1.1.3. Histological Diagnosis and Classifications

###### 10.8.1.1.3.1. Bone Tumors

###### 10.8.1.1.3.2. Cartilaginous Tumors

###### 10.8.1.1.3.3. Fibrous Tumors

###### 10.8.1.1.3.4. Bone Cysts

#### 10.8.1.2. Malignant Bone Tumors

##### 10.8.1.2.1. Introduction

##### 10.8.1.2.2. Ewing Sarcoma

###### 10.8.1.2.2.1. Epidemiology

###### 10.8.1.2.2.2. Clinical Symptoms

###### 10.8.1.2.2.3. Diagnosis

###### 10.8.1.2.2.4. Treatment

###### 10.8.1.2.2.5. Prognosis

##### 10.8.1.2.3. Osteosarcoma

###### 10.8.1.2.3.1. Epidemiology

###### 10.8.1.2.3.2. Clinical Symptoms

###### 10.8.1.2.3.3. Diagnosis

###### 10.8.1.2.3.4. Treatment

###### 10.8.1.2.3.5. Prognosis

## 10.9. Teratoma

### 10.9.1. Extragonadal Germ Cell Tumors: General Information

### 10.9.2. Mediastinal Teratomas

### 10.9.3. Retroperitoneal Teratomas

### 10.9.4. Sacrococcygeal Teratomas

### 10.9.5. Other Locations

## 10.10. Endocrine Tumors

### 10.10.1. Adrenal Gland Tumors: Pheochromocytoma

#### 10.10.1.1. Epidemiology

#### 10.10.1.2. Genetics

#### 10.10.1.3. Presentation and Assessment

#### 10.10.1.4. Treatment

#### 10.10.1.5. Prognosis

### 10.10.2. Thyroid tumors

#### 10.10.2.1. Epidemiology

#### 10.10.2.2. Genetics

#### 10.10.2.3. Clinical Symptoms

#### 10.10.2.4. Diagnostics: Imaging and Cytological

#### 10.10.2.5. Preoperative Endocrinologic Management, Surgical Intervention, Postoperative Management and Adjuvant Treatments

#### 10.10.2.6. Complications

#### 10.10.2.7. Postoperative Staging and Categorization

#### 10.10.2.8. Follow-up According to Staging



*You will gain access to a fundamental reference guide in Pediatric Surgery, even being useful after you finish your degree"*

06

# Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





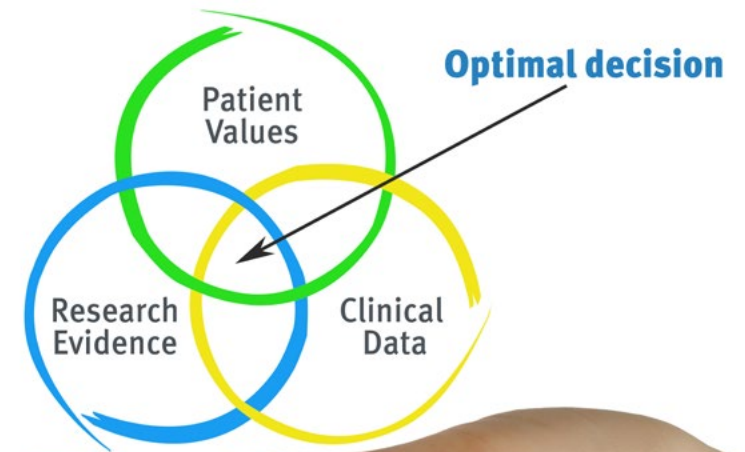
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.



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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

*Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



07

# Certificate

The Professional Master's Degree in Pediatric Surgery guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree diploma issued by TECH Technological University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

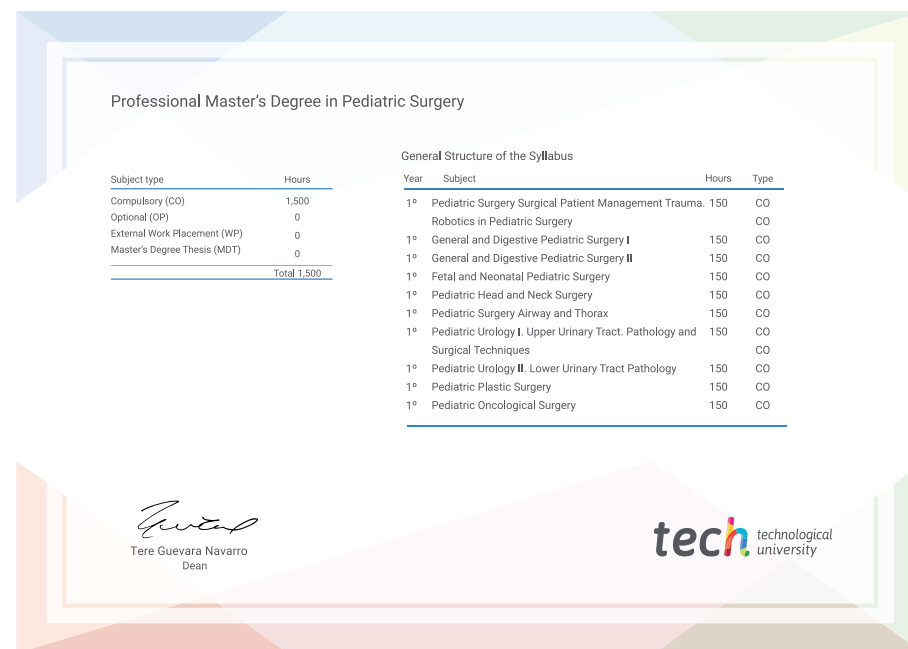
This **Professional Master's Degree in Pediatric Surgery** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** diploma issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Professional Master's Degree in Pediatric Surgery**

Nº of Hours: **1,500 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.





## Professional Master's Degree Pediatric Surgery

- » Modality: Online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Professional Master's Degree

## Pediatric Surgery

