

## ABC of Pediatric Surgical Imaging

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# ABC of Pediatric Surgical Imaging

 Springer

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# Introduction

This handbook is intended for doctors working in this field. It belongs to the pocket of a student, house officer, resident, medical officer or generalist consultant, who will first see the patient.

The clinician needs to suspect at least one disease process as a starting point, because the book is ordered alphabetically according to diagnoses. From this point there are both surgical and imaging differential diagnoses listed. These can also be looked at within the book.

For the clinician there is a dedicated page to assist with clinical symptoms and signs, alternative diagnoses and urgency of the radiological investigation, based on important information that is needed from imaging.

With regard to imaging, there is a list of primary, follow-on and alternative investigations appropriate for the suspected diagnosis. There are lists of imaging features with supporting images, tips and radiological differential diagnoses.

The alphabetic organization makes for a jump to the next suspected diagnosis with ease to find something more suitable for the current patient's needs.

The editors are experts in their field, with extensive practical experience and clarity into the complexity of problems encountered daily. They are also up to date on new imaging techniques and apply what they teach in clinical practice. They cannot be responsible for any errors in diagnosis, however, as clinical medicine still requires meticulous history and examination, as well as subjective opinion, which remains a product of knowledge, experience and even luck. Medicine is constantly changing and medical opinion changes over time and due to an increasing body of knowledge. The user of this book should keep this in mind. The editors hope that this book will be used to help the clinician make better decisions and help sick children.

South Africa

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# Abbreviations

AIDS	Acquired immunodeficiency syndrome
ARM	Anorectal malformation
AXR	Abdominal X-ray
CCA	Common carotid artery
CCAM	Congenital cystic adenomatoid malformation
CDH	Congenital diaphragmatic hernia (not congenital heart disease or congenital Dysplasia of hip)
CLE	Congenital lobar emphysema
CT	Computerised tomography (CAT scan)
CXR	Chest X-ray
DISIDA	Di-isopropyl iminodiacetic acid (HIDA)
DMSA	Dimercapto succinic acid
ECMO	Extracorporeal membrane oxygenation
ETT	Endotracheal tube
FNAB	Fine-needle aspiration biopsy
GIT	Gastrointestinal tract
HIV	Human immunodeficiency virus
HU	Hounsfield units (numeric measure of CT density)
IJV	Internal jugular vein
IVC	Inferior vena cava
IVI	Intravenous infusion
IVP	Intravenous pyelography (=IVU)
IVU	Intravenous urography (=IVP)
KTW	Klippel Trenauny Weber syndrome
L	Left
MAG 3	Mercapto acetyl triglycine
MCDK	Multicystic dysplastic kidney
MCUG	Micturating (voiding) cysto urethrogram
MEN	Multiple endocrine neoplasia
MIBG	Meta-iodobenzyl guanidine
MRA	Magnetic resonance angiography
MRCP	Magnetic resonance cholangiopancreatography

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MRI	Magnetic resonance imaging
MRU	Magnetic resonance urography
NAI	Non-accidental injury
NEC	Necrotising enterocolitis
NGT	Nasogastric tube
Nuc med	Nuclear medicine/scintigraphy
PET	Positron emission tomography
PNET	Primitive neuroectodermal tumour
PTC	Percutaneous transhepatic cholangiopancreatography
PUJ	Pelviureteric junction (obstruction)
R	Right
STIR	Short tau inversion recovery (MRI parameter)
SXR	Skull X-ray
TB	Tuberculosis
Tc	Technetium
T1	T1 weighted (MRI parameter)
T2	T2 weighted (MRI parameter)
UGI	Upper gastrointestinal (study)
US	Ultrasound
UTI	Urinary tract Infection
UVC	Umbilical vein catheter
VACTREL	Vertebral, anorectal, cardiac, tracheal, renal, esophageal, limb (abnormalities of syndrome)
VUJ	Vesicoureteric junction (obstruction)
VUR	Vesicoureteric reflux

# ABC of Pediatric Surgical Imaging



## Clinical Insights

- Primary motility disorder of the oesophagus.
- Failure of a hypertensive lower oesophageal sphincter to relax in response to swallowing results in a functional obstruction at the gastro-oesophageal junction.
- Fewer than 5% of cases occur in children.
- Symptoms include dysphagia (most common), regurgitation of undigested food, chest pain, heartburn and weight loss.



## Warning

- Risk of aspiration of contrast material in advanced cases



## Controversies

- The cause is still debated.
- Should surgical myotomy be accompanied by an anti-reflux procedure?



## Urgency

- Emergency
- Urgent
- Elective



## What the Surgeon Needs to Know

- The function of the oesophagus: Is peristalsis uncoordinated or non-propulsive?
- Does the lower oesophageal sphincter fail to relax during swallowing?
- The structure of the oesophagus: Does the oesophagus taper at the un-relaxed sphincter?
- Is there dilation of the oesophageal body?
- Is there pooling of barium or food residue in the oesophagus?



## Clinical Differential Diagnosis

- Acquired strictures – Due to gastro-oesophageal reflux and caustic ingestion.
- Congenital strictures in the form of fibrocartilagenous remnants.
- Oesophageal infections.
- Chagas disease may cause a similar disorder.