Clinical Guideline

UMBILICAL PATHOLOGY

SETTING	Primary and Secondary Healthcare Institutions in the Western Cape which refer to Red Cross War Memorial Children's Hospital (RCWMCH)
FOR STAFF	Primary and Secondary Doctors and Nurses who refer patients to RCWMCH
PATIENTS	Patients under the age of 13 years old with umbilical pathology

Introduction

Umbilical pathology includes several congenital and acquired conditions of the umbilical area. Some of these are dangerous conditions which need urgent management as soon as they are identified, but the majority can be assessed and managed on an elective basis.

This guideline will assist the user to make a diagnosis, initiate the appropriate first line management and arrange an appropriate referral.

Background

The most dangerous umbilical pathology is omphalitis. This is infection of the umbilical stump which is seen in the neonatal period. The danger with omphalitis is that sepsis can spread leading to liver abscesses, systemic sepsis or necrotising fasciitis. The condition may lead to portal vein thrombosis which can have significant long term complications.

Other conditions which often present in the neonatal period range from a simple umbilical granuloma, patent urachal remnants and omphalomesenteric ducts.

Umbilical hernias are the most common umbilical condition. They often present slightly later than the other conditions and the management is conservative in most patients.

Important details on history

Is the umbilicus red, swollen or tender?
Has there been fluid or discharge coming from the umbilicus?
Is there a mass at the umbilicus?
In neonatal patients:

- Did the patient have an abdominal wall defect at birth?
- How many days did it take for the cord to fall off?
- Was there anything applied to the cord to make it fall off?
- Was there any bleeding from the umbilicus?

In boys: is the urine stream normal (how far does the pee go when mom changes the nappy)?
Note: Weak urine flow may indicate posterior urethral valves which are associated with patent urachus in males.

Important details on examination

Are there any signs of systemic illness or sepsis?

Is there any redness or swelling on the skin around the umbilicus?

Is there any discharge coming from the umbilicus?
- What colour is the discharge?
- Is it clear fluid – like urine?
- Does it appear to be stool or bowel content?

Are there any features of bowel obstruction?
- Vomiting, abdominal distension and failure to pass stool

Is there a pink mass in the umbilicus?
- How big is it?
- What shape is it?

In an umbilical hernia:
- Is the hernia reducible?
- How big is the base of the hernia (the gap in the muscles)?
- How tall is the hernia (from the skin level to the tip of the hernia)?

If the hernia is very large:
- Does the patient have a large tongue?
- Are the testes palpable in the scrotum?
- Are there any other dysmorphic features?

Making the diagnosis

The first duty of the referring doctor is to decide if the patient has evidence of omphalitis. These patients will have a painful, oedematous, erythematous umbilicus. Cellulitis may have started to spread across the abdominal wall.

Omphalitis is an emergency and prompt initial management with stabilisation, ivi access, blood cultures, initiation of broad spectrum antibiotics (ampicillin, gentamycin and metronidazole – consider vancomycin and meropenem if the patient was previous admitted in NICU), analgesia and then urgent referral to paediatric surgery. It is helpful to mark the outer edge of the cellulitis with a pen to assist in assessing if there is spreading cellulitis beyond this point over the following few hours.

The clinical characteristics and guidance of management and appropriate referral for all other umbilical pathologies is tabulated below.

Diagnosis	Clinical features	Management and referral guidance
Omphalitis	Redness, oedema or cellulitis	Stabilisation, ivi access, blood culture, broad spectrum ivi antibiotics (eg: ceftriaxone and metronidazole), analgesia and URGENT REFERRAL
Umbilical granuloma	Moist pink tissue at the base of the umbilicus. Can be friable and can have surface bleeding. May have a small amount of exudate.	Confirm no significant discharge. Apply dry, fine table salt 3 times per day. Non-urgent paediatric surgery OPD review if no resolution after 1 week
Persistent patent urachus	May see a small opening in umbilicus or a small granuloma in	Arrange non-urgent paediatric surgery OPD review

	the umbilicus. There will be significant clear fluid coming from the umbilicus – wetting the clothing	If the patient is male, confirm if there are features of poor urine stream. If the urine stream is weak, expedite the paediatric surgery OPD review for within 1 week and plan for KUB ultrasound on the same day if possible.
Urachal cyst	May present with a swollen or infected umbilicus.	If there is sepsis, manage as per omphalitis above. If no cellulitis then arrange for a non-urgent paediatric surgery OPD review.
Omphalomesenteric duct	Opening within the umbilicus with green or brown discharge. Opening might be obscured by granuloma. Skin excoriation around the umbilicus or small bowel obstruction is rare but possible.	If there is cellulitis, manage as per omphalitis above. If there are features of bowel obstruction then for URGENT REFERRAL If no cellulitis or bowel obstruction then arrange for paediatric surgery OPD review within 2 weeks.
Prolapsed omphalomesenteric duct	In some cases of omphalomesenteric duct, the small bowel may intussuscept through the skin. This appears as a mass covered in mucosa with 2 dimples or "horns" at the tip.	This patient is likely to have bowel obstruction and should be have a URGENT REFERRAL
Umbilical hernia - reducible	This is a defect in the muscular ring at the umbilicus. Size can range from 6 cm to less than 1 cm.	Uncomplicated umbilical hernia does not require surgical review until after the age of 5 years old. The majority with spontaneously close by this age. Arrange non-urgent paediatric surgery OPD review at 5 years old for patient with unresolved umbilical hernias.
Umbilical hernia - incarcerated	Incarceration is possible but very rare. Features of incarceration are a painful lump, that cannot be reduced associated with vomiting and abdominal distention.	URGENT REFERRAL to paediatric surgery.