CONGENITAL ABDOMINAL WALL DEFECTS

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EMBROLOGY

- There are 4 folds forming the anterior abdominal wall, cephalic, caudal, and 2 lateral folds, forming a ring around the umbilical cord.
- Failure of specific fold to develop results in a characteristic abdominal wall defect and as follows:
  - Failure of the lateral folds causes Omphalocele.
  - Failure of the cephalic fold results in Pentology of Cantrell.
  - Failure of the caudal fold results in ectopia vesica.
- Omphalocele may also occur due to failure of bowel return following physiological herniation.
- Gastroschisis is thought to be due to failure of umbilical coelom to form, so that the elongating gut has no room to develop and extend out of the too small peritoneal cavity. The weakest point is the site of involuted right umbilical vein.

- **OMPHALOCELE**
- Central abdominal wall defect at the umbilicus, large defect more than 4 cm, covered with a sac, contains intestine, may contain liver and/or other organ.
- Usually term.
- High incidence of associated anomalies.
- High mortality.
- Antenatal diagnosis > U/S + increased maternal serum alpha-fetoprotein.

- ***Preoperative care and preparation:-***
- Complete physical examination of a warm baby.
- PR, NGT, Foley catheter, and U/S for detection of associated anomalies or decompression.
- Vitamin K and i.v fluid (at 150 ml/kg/day) and antibiotics.
- Hb% and blood glucose (Beckwith-Wiedemann syndrome).
- The omphalocele itself can be dressed with saline soaked gauze and an impressive dressing to minimize these losses.

Operative principle:-

- Small or medium sized omphalocele > primary closure of fascia and skin.
- Large with suspected risk of respiratory embarrassment > ventral hernia, 2nd operation 6-8 months later.
- Giant > non-operative with silver sulfadiazine cream and silastic pouch.

GASTROSCHISIS

- Usually to the right of umbilicus, small defect < 4 cm, no sac, and only midgut are exposed.
- Seldom has associated anomalies, although higher incidence of GI anomalies e.g. intestinal atresia.
- Usually premature.
- Antenatal diagnosis by U/S, elevated alpha-fetoprotein.
- Long term TPN.

PREOPERATIVE

- Fluid resuscitation is higher than omphalocele (at 200 ml/kg/24h).
- Nasogastric decompression is important to prevent undue distention of the stomach and intestine.
- The herniated bowel should be wrapped in warm saline-soaked gauze and placed in a central position on the abdominal wall. The bowel should be wrapped with plastic wrap.
- Although gastroschisis most often is an isolated anomaly, thorough examination of the neonate should be undertaken to exclude the coexistence of other anomalies.

SURGICAL MANAGEMENT

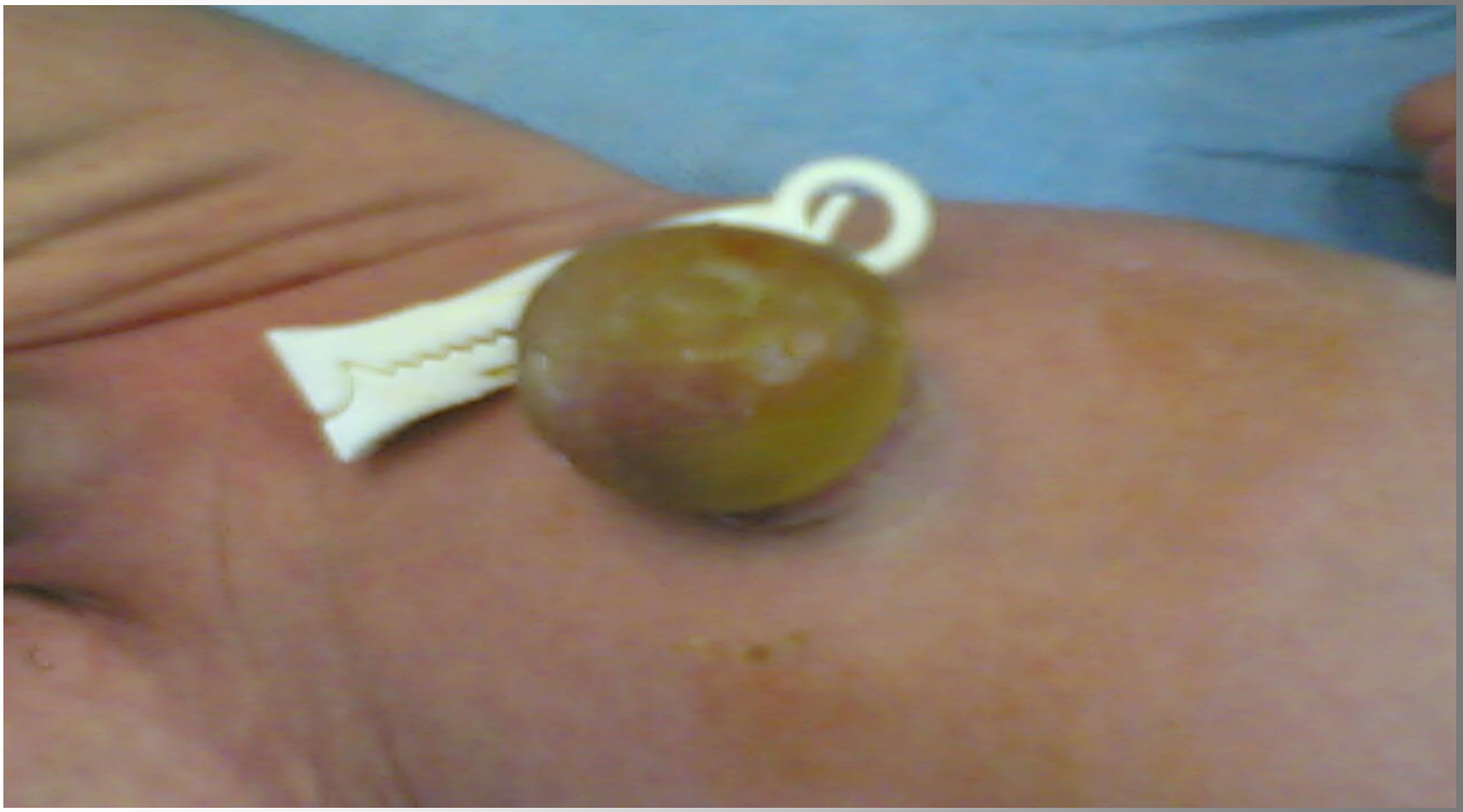
- *Primary Closure* For neonates in whom full reduction of the herniated viscera is thought possible.
- *Skin flap closure* making a ventral hernia, for a later repair.
- *Staged Closure* Spring-loaded silastic silo.
- **OUTCOME**
- MR of omphalocele > of gastroschisis.
- Omphalocele mainly due to associated anomalies.
- Gastroschisis depend on bowel status,prematurity& atresia.
- Bowel function return is faster in omphalocele.

- **UMBILICAL CORD HERNIA**
- Simple failure of midgut to return to the abdominal cavity at 10-12 weeks of gestation.
- Small defect < 4 cm, covered by thin membrane and contains only midgut.
- May contain a single loop of ileum that may be clamped with the umbilical clamp causing intestinal obstruction or enero-cutaneous fistula.
- Low incidence of associated anomalies.
- Usually primary closure.

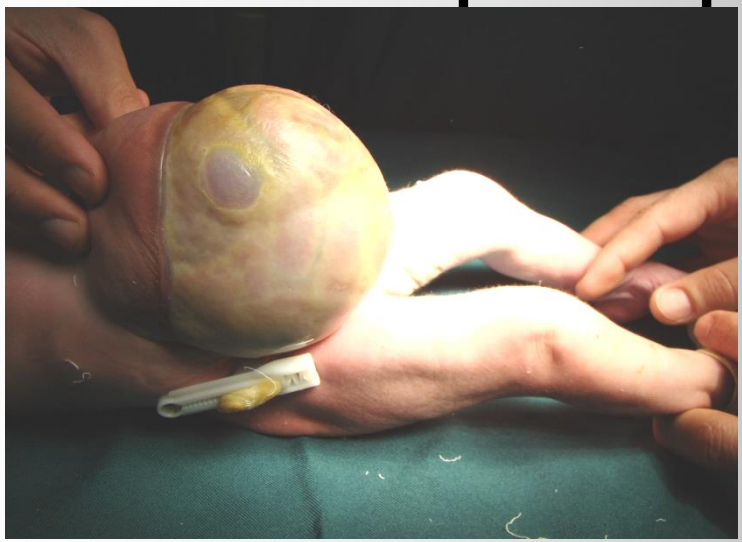
Differentiating Characteristics between Gastroschisis and Omphalocele

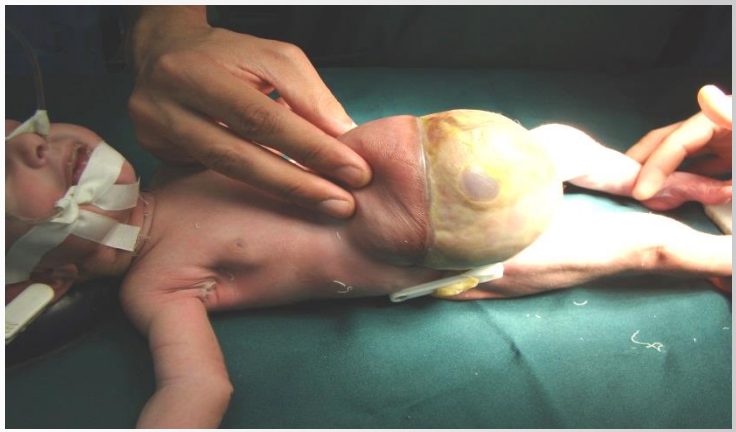
Characteristic	omphalocele	gastroschisis
Location of the defect	Umbilicus	Right of umbilicus
Sac	Present	Absent
Herniated viscera	Bowel ± liver	Bowel only
Associated anomalies	Common	Uncommon
Mortality	High	Low
Prognostic factors	Associated anomalies	Bowel condition/ prematurity
Postoperative ileus	Faster return of peristalsis	Prolonged

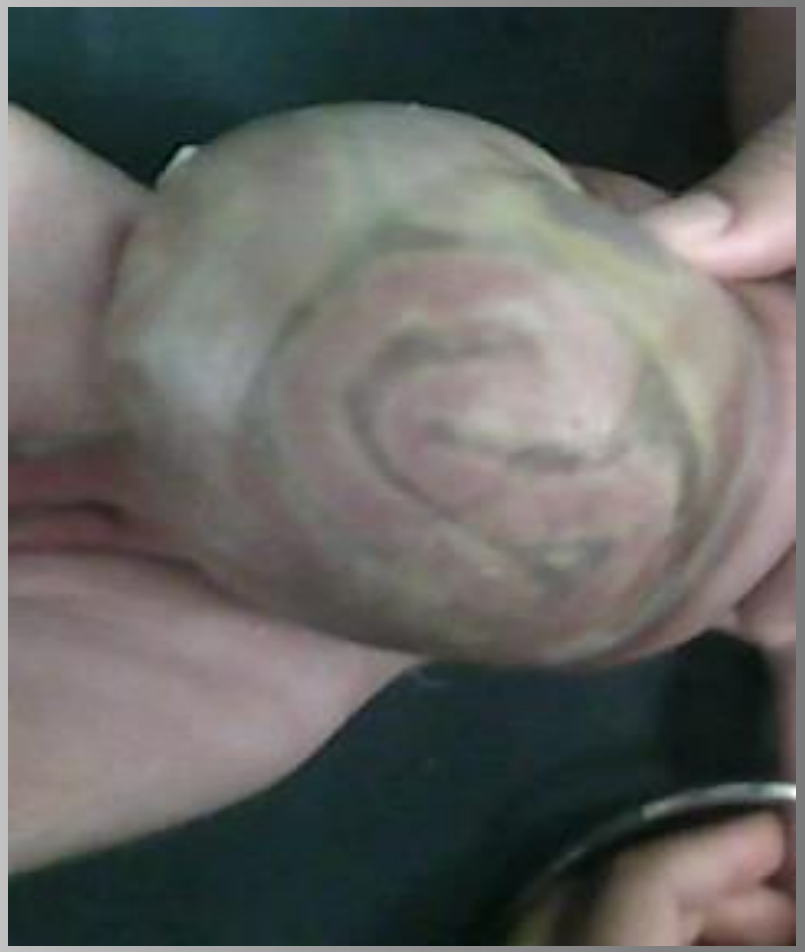
Minor omphalocele



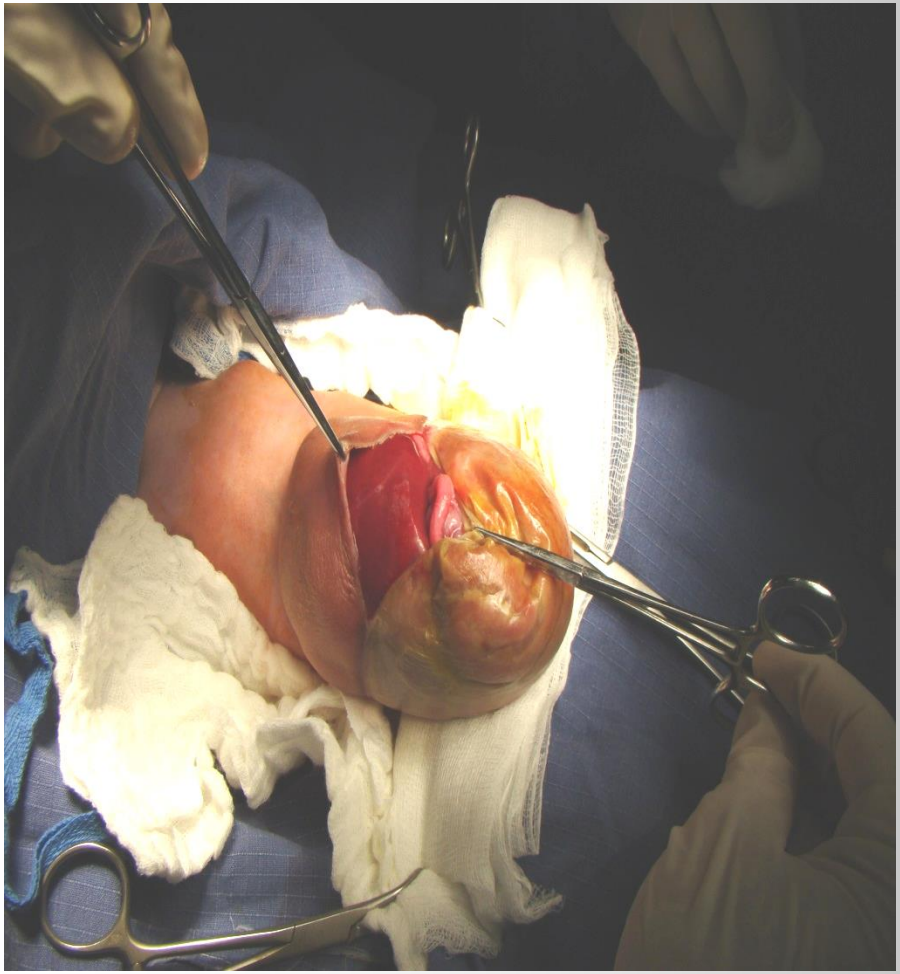
major omphalocele
Fatima muzahim - 4 days
pre operative

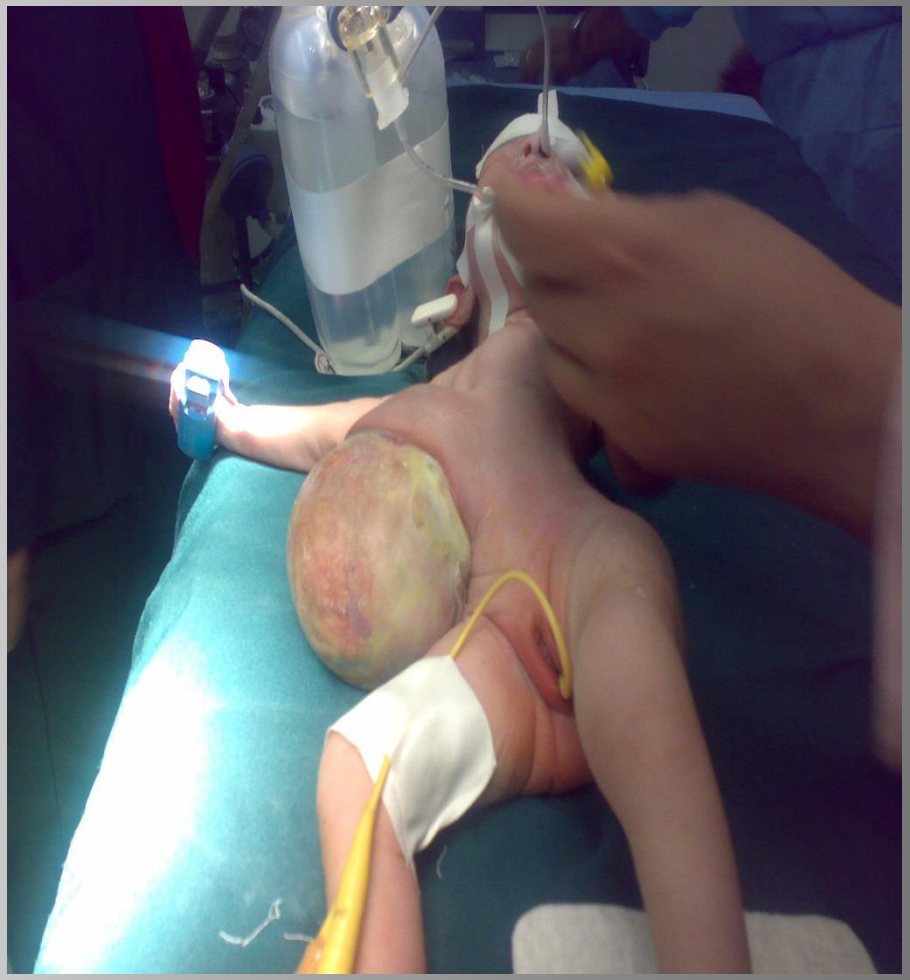




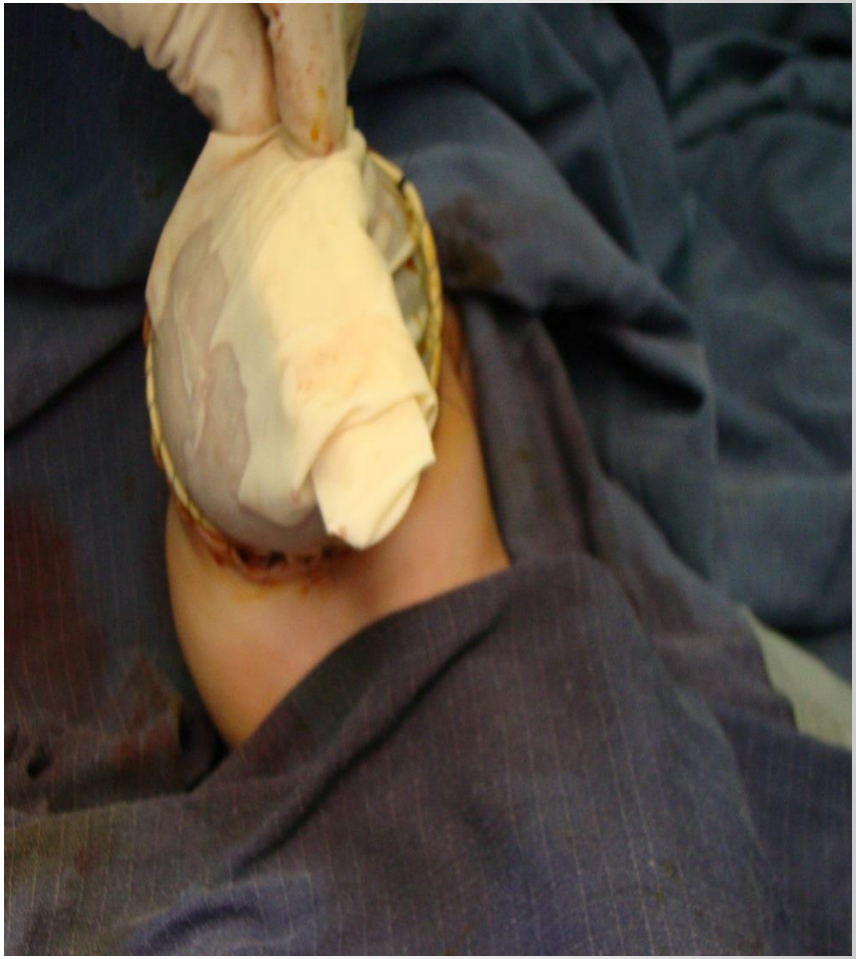


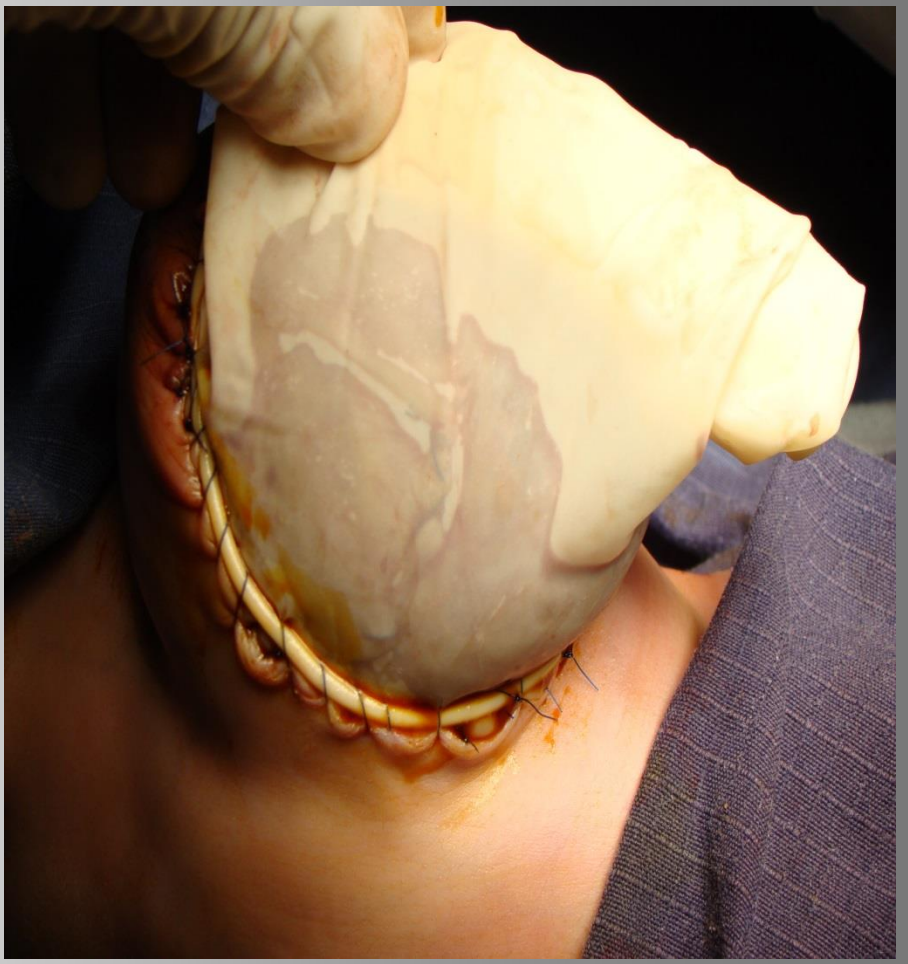
Fatima muzahim
Intra operative



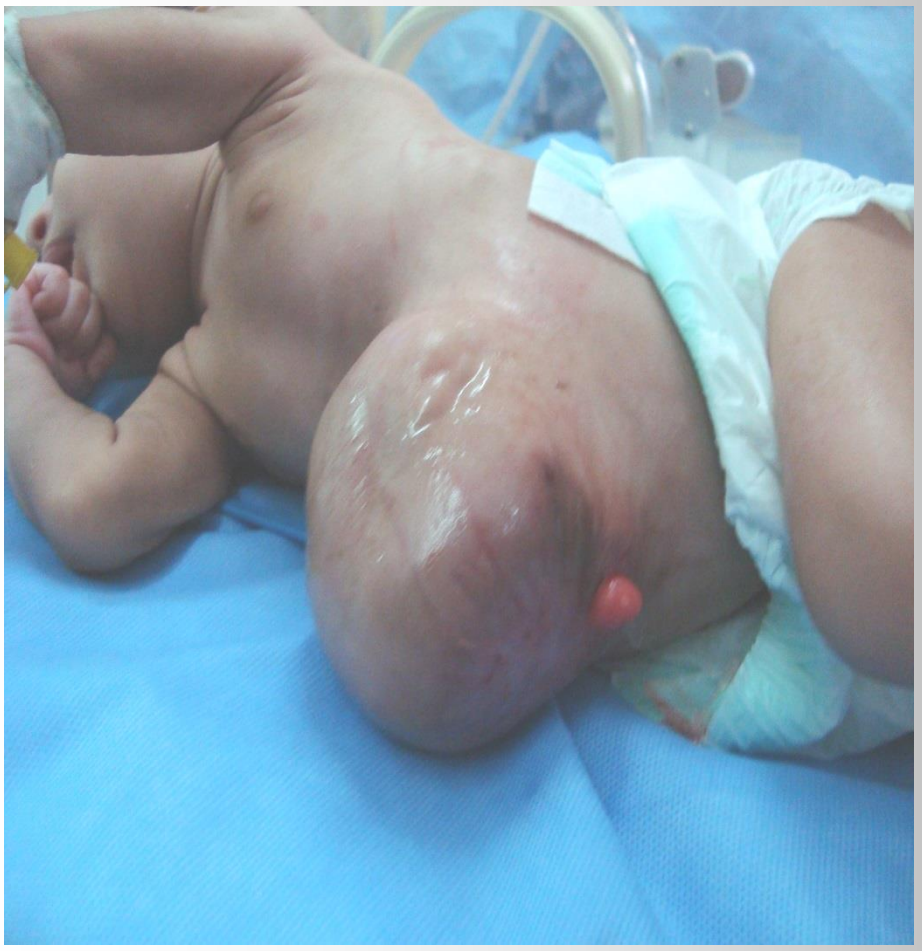


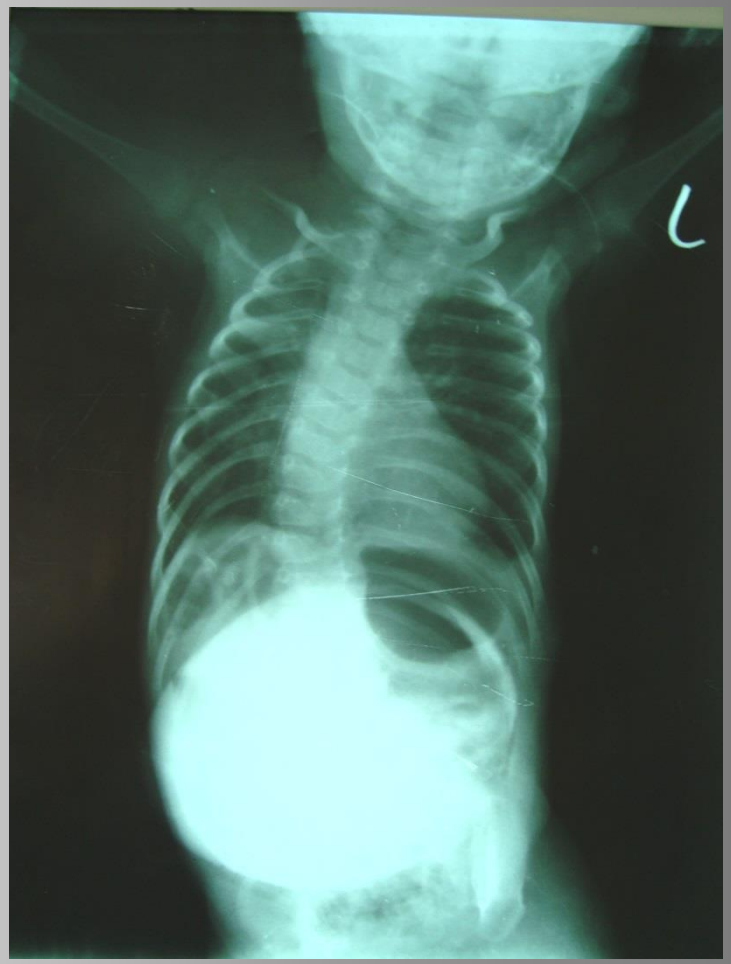
Intra operative





Fatima muzahim after 2.5 m post operative





Thank you very much