

CASE REPORT

Foetus-in-Fetu

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SUMMARY

Foetus-in-fetu is a rare condition in which a calcified mass is in the abdomen of its host, a newborn or an infant. We report a case of a newborn in whom abdominal radiograph and ultrasonography revealed a mass in which the contents favour a foetus-in-fetu. Diagnosis was confirmed by macroscopic examination that showed a soft tissue mass resembling a foetus, attached to the membranous sac. It was covered entirely with intact skin. There were two malformed lower limbs with a rudimentary digit and one malformed upper limb.

KEY WORDS:

Foetus-in-fetu, teratoma, parasitic twin, spine of foetus, parasitic twin.

INTRODUCTION

Foetus-in-fetu is a rare abnormality secondary to abnormal embryogenesis in a diamniotic, monochorionic pregnancy. This is very rare entity with estimated incidence is at 1 per 500,000 births¹. Foetus-in-fetu is an unusual condition in which a vertebrate foetus is enclosed within the abdomen of a normally developing foetus². It was originally described by Meckel in the late 18th century.

CASE REPORT

The foetus of a 25 year old Gravida 2 Para 1 Chinese lady was incidentally found to have a cystic mass in the abdomen during antenatal ultrasound. Magnetic resonance imaging of the foetus showed encapsulated cystic mass with a solid component within. The mass was situated inferior to the right lobe of liver and anterior to right kidney. Her antenatal period was uneventful. There was no history of diabetes and hypertension. There was neither twin pregnancy nor foetal malformation in the family history.

Subsequently she gave birth to a baby boy by a spontaneous vaginal delivery at 37 weeks of gestation with a birth weight of 3.5kg. The Apgar score was 9 at 1 minute and 10 at 5 minutes. The baby boy was active and had no dysmorphic features. An ill-defined mass was felt on the right side of the abdomen measuring about 5cm in size. The remainder of the physical examination was unremarkable.

Anteroposterior abdominal radiograph done at 30 hours of life demonstrated a soft-tissue mass that occupied the right

lumbar region displacing the adjacent bowel towards the left. The mass contained calcified osseous-appearing structures of varying sizes and shapes. These calcifications had the appearance of limb bones and vertebral bodies. Ultrasound of the abdomen revealed a 5cm x 4.5cm x 5cm complex mass surrounded by an anechoic fluid-filled sac. Rudimentary lower extremities and a spinal axis (Figure 1), were evident as part of the mass. The arterial and venous flows were demonstrated within the mass. Cardiac activity was not present.



Fig. 1: Ultrasound of the mass showing a spinal axis (arrows).

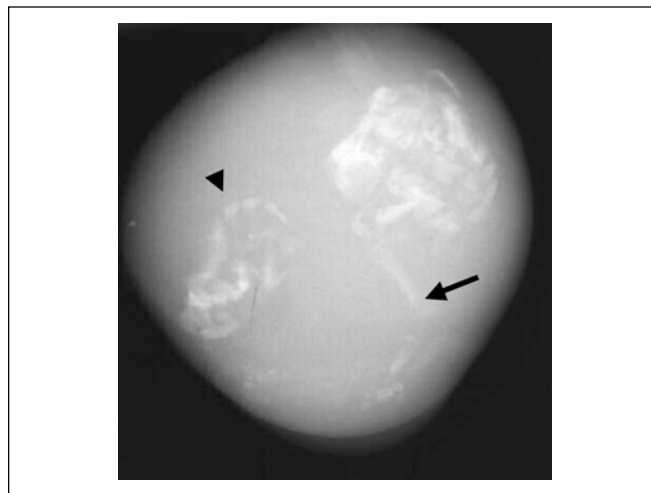


Fig. 2: A radiograph of the specimen shows long bones (arrow) and vertebral column (arrow head).

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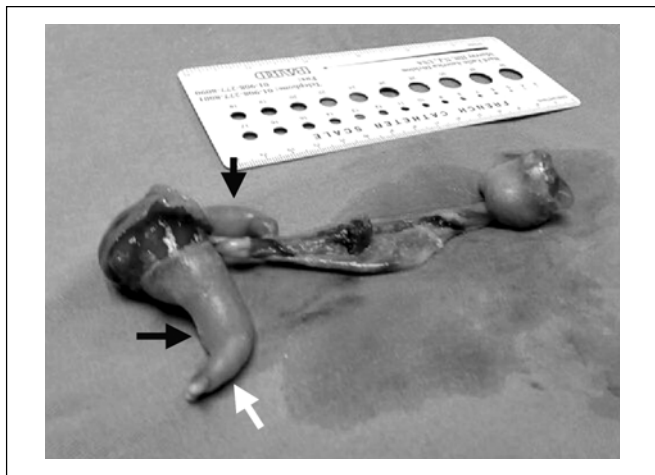


Fig. 3: There are two malformed lower limbs (black arrows) with rudimentary digit (white arrow) in the resected mass corresponding to an incompletely developed foetus.

Based on these imaging findings, a diagnosis of foetus-in-fetu was thus made preoperatively. Elective laparotomy was performed and a large retroperitoneal mass was found. The sac contained a clear fluid and the foetus within had grossly visible limbs (Figure 3). It was closely applied to the duodenum, transverse colon and superior mesenteric vein. The mass was dissected from the retroperitoneum with ligation of the feeding vessels.

A radiograph of the specimen showed long bones and a vertebral column (Figure 2). Macroscopic examination (Figure 3) revealed a soft tissue mass resembling a foetus, attached to the membranous sac. It was covered entirely with intact skin. There were 2 malformed lower limbs with rudimentary digit and one malformed upper limb. These corresponded to an incompletely developed foetus.

DISCUSSION

Foetus-in-fetu is a malformed parasitic monozygotic diamniotic twin that is found inside the body of the living child or adult. This pathology is very rare and the incidence is 1 per 500 000 births¹. Foetus-in-fetu was first described by Meckel in the late 18th century. It is a rare pathologic condition, with 79 cases reported the literature till 2000³.

In 70% of cases as in this case, the sign is an abdominal mass. It was predominantly located retroperitoneally in 80% of cases, but could be atypical. Thakral *et al* reported

six cases being intracranial, six cases anterior to the sacrum, one within the scrotum and another in the oral cavity³.

Embryogenesis of foetus-in-fetu is controversial. Some investigators propose that foetus-in-fetu occurs from the anomalous embryogenesis in a diamniotic monochromic twin pregnancy in which a malformed monozygotic twin lies within the body of its fellow twin. Others feel it to represent a highly organized teratoma².

In almost all cases (88%), there was a single parasitic foetus apart from five reports in which the number of the fetuses ranged from two to five. The size and weight of the foetus varied, from 4cm to 24.5cm and from 1.2g to 1.8kg respectively⁵.

The organs present in the foetus-in-fetu were as follows: vertebral column, 91%; limbs, 82.5% (number varied from 1 to 4); central nervous system, 55.8%; gastrointestinal tract, 45%; vessels, 40%; and genitourinary tract, 26.5%⁴.

Imaging plays an important role in the ability to correctly diagnose these cases in a prospective fashion. The diagnosis of foetus-in-fetu can be made with abdominal conventional radiographs, by identifying a vertebral column and/or specific bony structures³. Ultrasound, magnetic resonance imaging images and the identification of discrete organs at pathologic examination help to differentiate from teratoma which occurs mainly in the extra-retroperitoneal locations and may have definite malignant potential^{2,4}.

Treatment is complete resection of the mass except when it is adherent to the host's organs².

CONCLUSION

Foetus-in-fetu is a rare and interesting entity that typically presents in infancy or early childhood. Complete excision is curative.

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