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Foetus-in-Foetu

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Abstract

Foetus-in-foetu is a rare malformation in which a monozygotic diamniotic parasitic twin is incorporated into the body of its fellow twin and grows inside it. Less than 100 cases have been reported in literature. One day old newborn male was admitted with antenatal diagnosis of abdominal mass. It was cystic/solid in nature with pressure effects on left ureter and urinary bladder, most likely to be a germ cell tumour. Birth history was uneventful. Exploratory laparotomy was performed and the mass was excised. Physical examination confirmed the diagnosis of foetus-in-foetu. Although it is a rare condition, imaging may play an important role in the correct prospective diagnosis of foetus-in-foetu. Surgical excision is the recommended treatment.

Keywords: Foetus-in-foetu, Abdominal mass.

Introduction

The term foetus-in-foetu was first described by Meckel (circa 1800) and the first reported case was cited in 1809 by Young.¹ The term foetus-in-foetu is used to point out an unequal division of totipotential cells of a blastocyst which results in the inclusion of a small cellular mass in the more mature embryo. This is a form of monozygotic diamniotic twin pregnancy where the parasitic twin installs and grows in the body of its partner.²

Foetus-in-foetu is a rare entity.³ The incidence is about 1:500,000 deliveries and less than 100 cases have been reported in literature.³ The majority of cases occur are diagnosed in infancy and/or very rarely in older age.⁴

In 70% of cases the chief complaint is an abdominal mass.⁵ It is predominantly seen retroperitoneally in 80% of cases but can present at atypical sites like the skull, sacrum, scrotum and the mouth. Eighty-nine per cent of foetus-in-foetu lesions were noted before 18 months of age.^{1,5,6} Tharkral et al. reported equal male and female prevalence.⁷

Case Presentation

One day old newborn male was admitted in Neonatal Intensive Care Unit (NICU) with antenatal diagnosis of a cystic/solid abdominal mass with pressure effects on left ureter and urinary bladder, most likely to be a germ cell



Figure-1: Foetus in foetu.



Figure-2: Rudimentary lower limbs.

tumour. Birth was uneventful. Baby underwent exploratory laparotomy on the 3rd day of life and the mass was successfully excised. Perioperative findings showed a well-circumscribed mass in left retroperitoneal region with left ureter matted to the posterior wall and also to the descending colon. Foetus-in-foetu with umbilical cord arising from the amniotic sac was identified with partially developed rudimentary lower limbs (Figure-1 and 2). Histopathology findings were consistent with foetu-in-foetu. Post surgery course was uneventful. Baby remained in hospital for 5 days and was discharged on feeds.

Discussion

Foetus-in-foetu is a condition where a malformed twin is found inside of the body of its co-twin. It can be located at any site in the body. The term foetus-in-foetu is used to draw attention to an unequal division of totipotential cells of a blastocyst which results in the inclusion of a small cellular mass in the more mature embryo. This is a form of monozygotic diamniotic twin pregnancy where the parasitic twin installs and grows in the body of its partner.²

This is a rare malformation that has some similarities with retroperitoneal teratoma, but it is different from the latter by its fetiform aspect and the metameric segmentation of its spinal axis.² However, not all reported cases of foetus-in-foetu have an identifiable spine.⁸⁻¹⁰

The differential radiologic diagnoses are teratoma and meconium pseudocyst. Indeed, these masses often have had calcified components, so they have been sometimes difficult to differentiate with foetus-in-foetu.⁶

In reviewing literature most case reports up till 1980 showed that preoperative diagnosis of foetus-in-foetu was made only in 16.7% of cases because CT scan was not performed. Nowadays, CT scan has proven to be very helpful in suggesting the preoperative diagnosis.¹¹

Although there has been little evidence of organogenesis in literature, mature somatic tissue from ectodermal (neuroepithelium, ganglia), endodermal (colon) and mesodermal (bone and cartilage) origins have been present. These, together with the presence of a complete

vertebral column with appropriate arrangements of limbs around it, differentiate foetus-in-foetu from a teratoma. Complete excision of the surrounding membrane, should make certain of an unambiguous cure.¹²

Hopkins et al reported malignant recurrence following resection of a foetus-in-foetu.³ This was presumably caused by transformation of adherent membranes remaining at the surgical site. In view of this report, early and frequent post operative followup is recommended, especially if the sac cannot be completely resected. This may be achieved with moderate sensitivity using serum tumour marker concentration or by regular imaging.³

Conclusion

Foetus-in-foetu is a very rare and extraordinary condition. CT scan or MRI may play a vital role in its correct antenatal diagnosis. Although rare, the tumour should be removed for confirmation of diagnosis and its potential effect on normal renal function and its trivial malignant potential.

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