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## Case Report

# Fetus in fetu: A rare case of intra-abdominal mass

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### ABSTRACT

Fetus in fetu is uncommon cause of retroperitoneal mass in infancy that resulted from abnormal embryogenesis. Clinical manifestations vary and mostly presented at infancy. It is differentiated from teratoma through its location, benign course, and identification of limb buds and well-organized organs. Radiologically, identification of long bones and organized vertebral bodies are core in the diagnosis. Presented is 4 days-old male with abdominal distention as the main manifestation. Definite radiological diagnosis was done by Ultrasound (US) and computed tomography scan.

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## Introduction

Fetus in fetu is a rare congenital anomaly that occurs secondary to abnormal embryogenesis in a diamniotic monochorionic pregnancy [1]. It was first described in the 1800s by Johann Friederich Meckle [2]. Less than 200 cases of fetus in fetu have been reported till now [3]. It is an unusual condition in which a vertebrate fetus is enclosed within the abdomen of the other fetus. There is still controversy in considering fetus in fetu as a separate diagnosis and some consider it as a form of highly differentiated teratoma [4]. This condition has 2:1 male predominance [5] and patients start presenting in the first year of life mostly with abdominal distention [1].

## Case report

A full term 4-day-old boy presented with abdominal distention and recurrent vomiting. His weight is 2750 gm, height

45 cm and abdominal circumference 37 cm. The pregnancy was uneventful. On examination, a large intrabdominal mass was felt of variable consistency. Abdominal ultrasound showed a large intrabdominal mass lesion measuring  $9 \times 9 \times 5$  cm with oval shape, well-defined outline, smooth surface, mixed solid, and cystic components with multiple straight bony structures as well as cystic elements (Figs. 1 and 2).

Computed tomography (CT) of the abdomen and pelvis obtained before and after contrast injection with 3D reconstruction revealed a large complex abdominal mass lesion measuring about  $94 \times 66 \times 70$  mm, extending in both pararenal spaces displacing bowel loops laterally and superior mesenteric artery and stomach superiorly. It shows remnants of fetal parts and limb buds (Figs. 3–5). 3D reconstruction CT shows multiple long bony structures mostly of long bones of fetus along with vertebral bodies (Fig. 6).

Surgical excision was done under general anesthesia and total excision of the mass (375 gm) was done. The mass grossly showed hands and feet at its outer surface. On opening, there

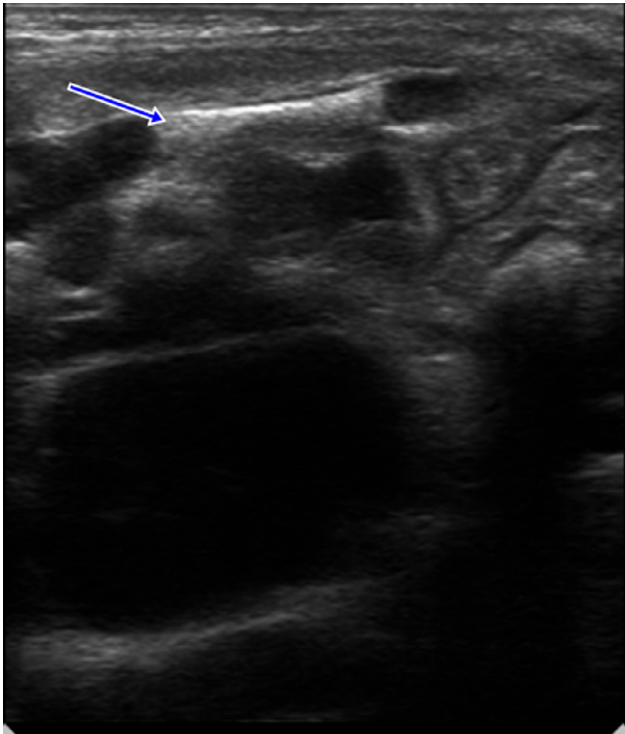
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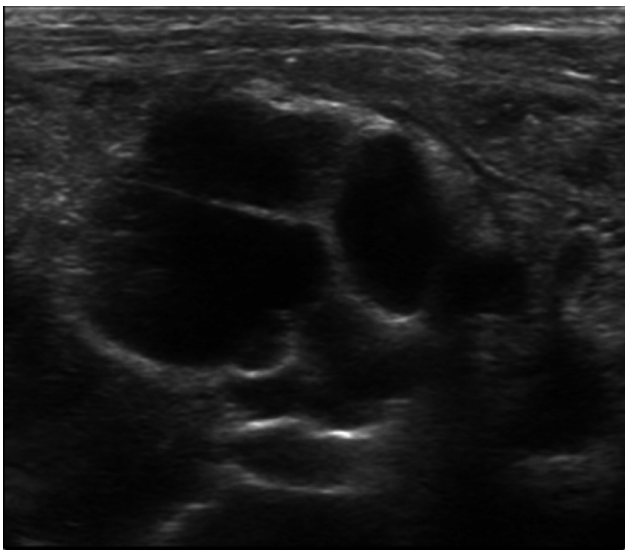
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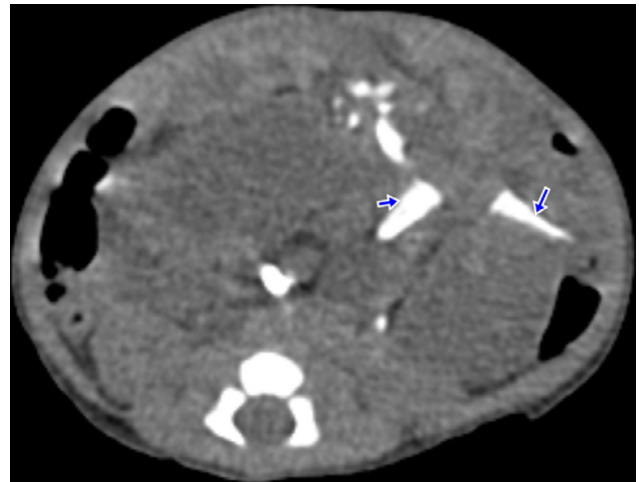
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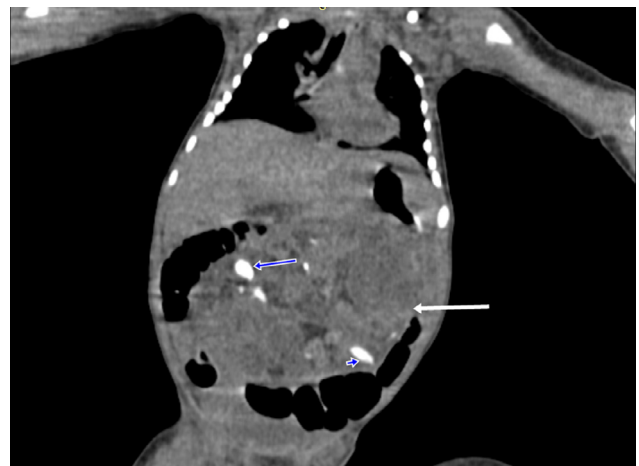
**Fig. 1 – U/S:** Shows a well-defined complex abdominal mass lesion with cystic and bony (Blue arrow) elements. (Color version of figure is available online.)



**Fig. 2 – U/S** shows a well-defined complex abdominal mass lesion with cystic elements.



**Fig. 3 – Axial plain CT** showing an intra-abdominal mass lesion displacing the bowel loops and shows remnants of bone tissue (Blue arrows). (Color version of figure is available online.)



**Fig. 4 – Coronal plain CT** showing an intra-abdominal mass lesion (White arrow) displacing the bowel loops and shows remnants of bone tissue (Blue arrows). (Color version of figure is available online.)

No evidence of immature elements and no evidence of malignancy.

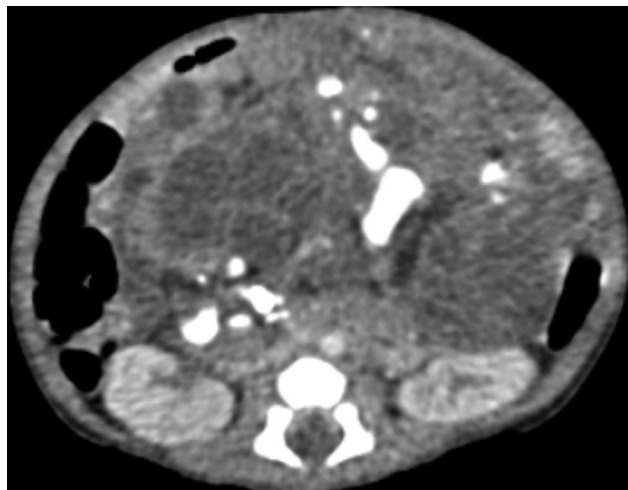
Recovery was uneventful for 2 days after which clinical deterioration occur from postoperative complications due to anemia and sepsis. The patient passed away a week after operation.

are cystic spaces, fatty tissue, and various organs with skin and hair (Fig. 7)

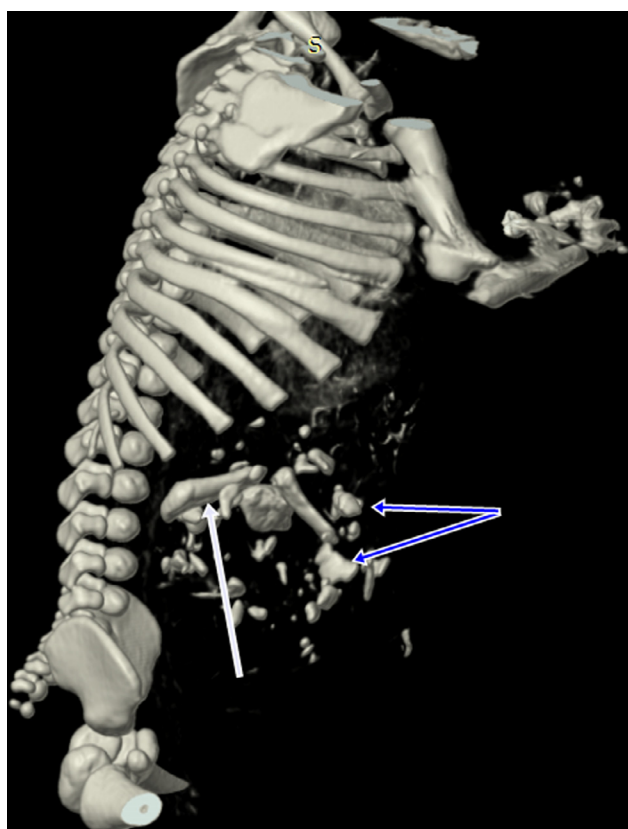
Pathology report showed mixture of skin with hair tuft shafts and sebaceous glands, small intestine, colon, islands of mature cartilage, mature brain tissue choroid plexus, smooth and skeletal muscle fibers, fibrous tissue, and blood supply.

## Discussion

Fetus in Fetu is an abnormal congenital condition that resulted from unequal division of the totipotent inner cell mass of the developing blastocyst leads to the inclusion of a smaller cell mass within a maturing sister embryo [6]. The fetus in fetu



**Fig. 5 – Axial CT with IV contrast showing a heterogenous intra-abdominal mass lesion displacing the bowel loops and shows remnants of bone tissue.**



**Fig. 6 – 3D reconstruction of Fetus in Fetu showing long bones (Blue arrows) and dysmorphic vertebrae (White arrows). (Color version of figure is available online.)**

produces symptoms due to mass effect leading to distention, difficulty in feeding, vomiting, jaundice, and urinary retention [1]. There is still controversy in considering fetus in fetu as a distinct entity or considering it as highly differentiated teratoma. Many authors claim that it is important to differentiate



**Fig. 7 – Excision of the mass through abdominal exploration under general anesthesia showing limb buds (Blue arrows) and the cystic components (White arrow).**

between both diagnoses because of the different prognosis of both diseases [4].

Teratoma is the presence of variety of tissues in quite abnormal location with varying degree of malignant potential. Even the presence of high differentiated tissue doesn't exclude the teratoma. Teratoma, unlike fetus in fetu—does not show signs of possession of vertebral axis or regional distribution of organs. Teratomas are considered true neoplasms with malignant potential [4].

The presence of immature elements within the fetus in fetu emphasizes the need of complete excision along with its covering membrane, as cases of malignant transformation of remnant membranes have been reported. Risks associated with fetus in fetu are hemorrhage, infection, mass effects, and pleuroperitoneal inflammation due to leak of sac contents [2].

The CT findings are of a mass lesion consisting of various tissue components mainly cysts and fat surrounding tubular bone structures. The presence of vertebral bodies in 3D CT despite being distorted is a guide for the diagnosis. Our findings were similar to those reported and help us to diagnose this rare disease and are confirmed with pathology specimen.

In summary, fetus in fetu is rare disorder that occurs in diamniotic and monochorionic pregnancy and results from error in embryogenesis. The main differential diagnosis is Teratoma. CT and ultrasonography are useful tools in diagnosing the disorder.

## REFERENCES

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- [1] Sharma A, Goyal A, Sharma S. Fetus in fetu: A rare case report. *J Res Med Sci Off J Isfahan Univ Med Sci* 2012;17(5):491.
- [2] Narayanasamy JN, Nallusamy MA, Baharuddin ND. Fetus-in-fetu: a pediatric rarity. *J Surg Case Rep* 2014;2014(2)rju001.
- [3] Arlikar JD, Mane SB, Dhende NP, Sanghavi Y, Valand AG, Butale PR. Fetus in fetu: two case reports and review of literature. *Pediatr Surg Int* 2009;25(3):289.
- [4] Willis RA. The borderland of embryology and pathology. *Bull N Y Acad Med* 1950;26(7):440–60. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/15426876>.
- [5] Patankar T, Fatterpekar GM, Prasad S, Maniyar A, Mukherji SK. Fetus in fetu: CT appearance—report of two cases. *Radiology* 2000;214(3):735–7.
- [6] Lewis RH. Foetus in foetu and the retroperitoneal teratoma. *Arch Dis Child* 1961;36(186):220.