



Immature gastric teratoma in neonate – 2 case reports

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ABSTRACT

Extra-gonadal teratomas commonly occur in sacrococcygeal region, followed by mediastinum, intracranial region & retroperitoneum. Gastric teratomas are extremely rare and Immature gastric teratomas account for <1% of cases. It usually seen in male infants and were presented as abdominal distention with upper abdomen palpable mass. This report analyses two large immature teratomas of grade 1 and grade 2. Tumours were excised totally with part of the stomach.

KEYWORDS

Immature teratoma, gastric region, neonates

INTRODUCTION :

Teratomas are relatively common embryonal tumours that arise from totipotent cells and contain elements from all three germ layers ectoderm, endoderm and mesoderm, Commonly they occur in the sacrococcygeal area, ovary, testes and retroperitoneal space and they can be benign or malignant¹. Gastric teratomas are very rare and usually seen in male infants and present as palpable abdominal mass with distention of abdomen. The histopathologic examination confirms the diagnosis. Depending upon the presence of the embryonal and adult tissues, teratomas may be mature or immature. Norris grading system was given on the basis of various karyotypic abnormalities. GRADE 0 – Mature teratoma with adult tissues derived from all three germ layers, GRADES 1, 2 and 3 – Immature teratomas with primitive neuroepithelial elements along with adult tissues. In grade 1 Immature teratoma, immature elements like immature cartilage confined to one focus in a slide and in grade 2 & 3 immature elements confined to less than 4 or more than 4 fields in a slide respectively. Mostly gastric teratomas are benign and malignant tumors have also been reported.²

We herewith report two cases of immature gastric teratomas in neonates.

CASE - 1:

A 10 day old male child was brought with the complaint of an abdominal mass. Examination revealed a large mass extending from the epigastrium to the pelvic region. All laboratory parameters were normal except alpha fetoprotein level which was 450ng/ml (normal 27 to 397ng/ml). CT abdomen showed a solid and cystic mass with calcifications and fat attenuation. Peroperatively the tumor was found on the anterior wall of the stomach close to the lesser curvature. He was explored through left supra umbilical transverse incision.

Grossly we received a 10x9x6.5 cms nodular soft tissue mass. There was no breach on the surface. Cut section revealed a gray brown soft tissue mass with solid and cystic areas and with foci of calcification. (Figure-1)

Microscopy showed a variable histologic pattern with mature elements like immature cartilage, stratified squamous epithelium, bone, glial tissue, sebaceous glands, hair follicles, ganglion cells, hematopoietic elements and pigmented retinal ep-

ithelium..

Based on the CT, gross and histopathological findings a diagnosis of immature teratoma grade 1 was made.

CASE - 2:

A 2 day old male child was brought to the pediatric surgery OPD with an abdominal mass, which on CT examination showed a soft tissue mass with solid, cystic and fat attenuated areas. Biochemically alpha-fetoprotein levels are 1450ng/ml. Peroperatively the tumor was arising from the lesser curvature of the stomach and was excised by giving supra-umbilical transverse incision.

Grossly the tumour measured 14x11x9 cms. Surface was nodular. On cut section there is variegated appearance with solid and cystic areas. Microscopy revealed a variable histologic pattern showing cartilage, sebaceous glands, hair follicles, respiratory and intestinal type of epithelium along with multiple foci of primitive neuroepithelial tubules. (Figure-2)

Based on the clinical, CT and histological findings a diagnosis of an immature teratoma grade 2 was made.

DISCUSSION:

Teratomas are the most common tumours among germ cell neoplasms in children. In pediatric age group teratomas are most commonly occurs in the sacrococcygeal region (60% – 65%) followed by mediastinum (11.7%), gonads (10% - 20%), presacral (5%) and in other sites less than 5%.³ Extragonadal germ cell tumours most commonly seen in neonates, infants and toddlers.⁴ Primary gastric teratomas are very rare in neonates, infants and children and constitute < 1% of all teratomas in children. Although rare stomach is the most common site of non gonadal, non gestational and non midline germ cell tumours.⁵ Till now nearly 112 cases of gastric teratomas have been reported in the literature of which less than 15 cases are of immature type.² For unknown reasons there is male predominance with 90% of cases reported in boys and that too mostly in infants (Gupta et al, 2000; Sharma et al., 1994; Frubach, 2002; Wildbrette et al., 2012, M. Mathew). The growth of the gastric teratomas may be purely exogastric in 65%, purely endogastric in 9% and exo/endogastric in 26% of reported cases.⁶ There are reports that endo-

gastric teratomas present with upper gastrointestinal bleeding because of intraluminal growth of tumour and mucosal ulceration.⁷ These tumours may also be the cause for respiratory difficulty and for premature labour because of its larger size.⁸ Most of the gastric teratomas are seen in the greater curvature and most of them are benign with excellent prognosis after total resection.⁹ In our two reported cases both tumours were arising from the lesser curvature of the stomach. Plain radiographs of the gastric teratomas usually show soft tissue mass with calcification in the upper abdomen. Certain characteristic features like male predominance, benign nature and favourable prognosis are unique for the gastric teratomas as they are not seen in the other extragonadal tumours and definite preoperative diagnosis can be made by clinical and radiological examination.⁹ The majority of gastric teratomas however benign and in the presence of immature neuroepithelial tubules, these tumours are considered as malignant, but even then prognosis is good after total resection.¹⁰

In our study both of our patients were male neonates presented with palpable abdominal masses. Radiological examination revealed solid and cystic areas with foci of calcification and was treated by total surgical excision. On histopathologic examination both tumours were revealed mature elements of all three germ layers as well as foci of primitive neuroepithelial tubules by which diagnosis of immature teratoma was given. These cases were presented not only for their rarity but also to highlight the significance of histopathology in diagnosing tumours in unusual location and for follow up. In these cases two years followup was done during which alpha feto protein levels are found to be normal.

In conclusion gastric teratoma is extremely rare tumour of childhood and in almost all cases it is benign. It occurs mostly in male infants as palpable abdominal mass and should be distinguished from other causes of abdominal masses. Post operative follow up is mandatory particularly in cases of immature teratomas.

IMAGES



FIGURE-1- Cut section of the gross specimen showing gray white solid and cystic areas

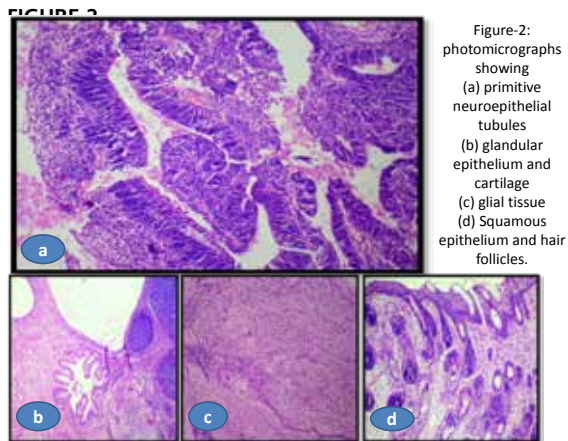


Figure-2: photomicrographs showing (a) primitive neuroepithelial tubules (b) glandular epithelium and cartilage (c) glial tissue (d) Squamous epithelium and hair follicles.

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