

## CASE REPORT

**Gastric Teratoma: A Case Report**Md. Toufique Ehsan,<sup>1</sup> A. Rahman,<sup>2</sup> M. Kabirul Islam<sup>3</sup>**Introduction**

Teratomas are embryonal neoplasms that contain tissues from all the three germ layers. These lesions frequently present in infancy and childhood, and may be benign or malignant, and cystic or solid.<sup>1</sup> They can occur anywhere, the common sites being the sacrococcygeal region, the retroperitoneum and the gonads. Gastric teratomas are rare benign tumours and account for less than 1% of teratomas.<sup>1</sup> The disease usually occurs in children younger than one year of age especially neonates.<sup>3</sup> Most of the reported cases are males but it has also been observed, albeit with lesser frequency, in females.<sup>2</sup>

Gastric teratoma may present as an abdominal mass, gastrointestinal bleeding and/or obstructive picture. This report presents a case of a 29 days old boy who presented with abdominal mass and vomiting.

**Case report**

A 29 days old male infant was admitted with a history of abdominal distension since birth and on the 11<sup>th</sup> day of life he began to vomit milk and serous secretion. On examination, a mass was palpated in the upper abdomen causing grossly distended abdomen. This male child was born at term and had a normal prenatal history and birth. Results of all laboratory values were normal. He had had several normal bowel movements.

Plain X-ray abdomen revealed a soft tissue mass in the upper abdomen, with flecks of calcification within. The mass was seen to cause an impression on the stomach and displacement of the bowel loops to the right side and below. These findings were confirmed on barium studies.

Ultrasonography revealed a large mass - predominantly solid, with multiple cystic areas within (Figure: 1). A few hyperechoic areas were seen within the mass. The mass was inseparable from stomach but separated from left kidney and spleen. The left kidney was displaced downwards, but otherwise normal. Rests of the abdominal viscera were normal.



Figure-2 : Laparotomy showing gastric teratoma

- 1 Registrar, Department of surgery, Dhaka Shishu Hospital
- 2 Assistant professor, Department of surgery, Dhaka Shishu Hospital
- 3 Professor Department of surgery, Dhaka Shishu Hospital

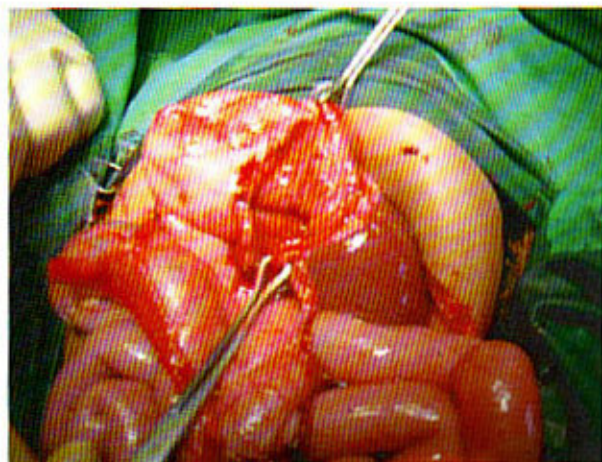


Figure-3 : After removal



Figure-4 : Resected teratoma

On exploratory laparotomy, a large tumour was seen adherent to the stomach wall, partly inside the stomach through greater curvature and partly outside the stomach which was excised, with subsequent repair of the defect in the stomach wall. Histopathology revealed several well-differentiated tissues derived from all the germ layers - skin with its appendages, respiratory tract epithelium, intestinal mucosa, neural elements, adipose tissue and muscle bundles.

### Discussion

In children, teratomas occur most commonly in the sacro-coccygeal region (60-65%). Other sites of origin are the mediastinum (11.7%), gonads (10-20%), presacral region (5%), retroperitoneal, intracranial and cervical regions (< 5%).<sup>4</sup> Gastric teratomas account for less than 1% of teratomas in children and are even rarer in adults. Gastric teratomas tend to form a distinct subset of teratomas as they are not associated with the dorsal body axis, embryonic body wall and somatic pleura.<sup>5</sup> They differ from teratomas arising from other sites in three ways. First, they are not associated with any congenital anomalies in contrast to 10-15% incidence at other sites. Second, most of the gastric teratomas (>95%) are seen in males<sup>6</sup> compared to female preponderance (65-70%) at other sites. Lastly, they are almost always benign in nature as compared to 10-39% incidence of malignancy at other sites such as the sacro-coccygeal region, mediastinum and gonads.<sup>1, 7</sup> As a result they have an excellent prognosis after surgery, compared to teratomas at other sites. Gastric teratomas are seen mainly in infants and children. The commonest presenting features are abdomen distension and mass, the other presentations being vomiting, feeding problems, respiratory distress, weakness, abdominal pain and constipation. Hematemesis and melaena are extremely rare symptoms seen in patients who have tumors with an endophytic component.<sup>8</sup> Plain radiographs of gastric teratomas usually show a soft tissue mass with calcification in the upper abdomen. Calcifications are seen in more than 50% of patients<sup>8</sup> presence of bone and teeth is considered pathognomonic. The mass may displace the bowel loops

downwards and to the right. Barium meal studies demonstrate gastric deformities or extrinsic pressure on bowel loops. Intraluminal filling defect is said to be characteristic of gastric teratomas.<sup>9</sup> The sonographic appearances vary from a predominantly cystic mass to a heterogenous mass with solid and cystic areas. The cystic areas are anechoic with or without septation of varying thickness. The solid areas are heterogenous and may show focal areas of hyperechogenicity with distal shadowing suggestive of calcification.<sup>10</sup>

Computerized Tomography is particularly well suited to the evaluation of gastric teratomas. Tumors appear as well encapsulated masses with hypodense solid areas and cystic areas of water attenuation. The advantages of CT are the demonstration of complete extent of the tumor and its attachments, demonstration of areas of fat, foci of calcification not picked up on X-rays or ultrasound and intraluminal projection of the tumor into the stomach. Involvement of other organs particularly bowel loops is well visualized on CT. CT scan could not be done in this patient due to his poor socioeconomic condition.

On histopathological examination, the tumors demonstrate several tissues derived from all the three germ layers - skin and its appendages, smooth muscle, fat tissue, cartilage, respiratory epithelium and neural tissue. The tissues in gastrointestinal teratomas are usually fully differentiated except for gastric teratomas in which areas of immature neuro-epithelial tissue may be found that appears malignant histologically.<sup>11, 12, 13</sup> It is important to establish a pre-operative diagnosis of gastric teratomas, as they are clinically benign thereby allowing elective

surgical treatment. Patients with gastric teratoma even those with malignant histological features or exophytic extension into adjacent organs and tissues, have an excellent prognosis.<sup>11,12,13,14</sup> Surgical resection of the entire mass is usually curative; incomplete resection may result in recurrence. Additional therapies (ie, chemotherapy and radiation therapy) are not needed. Hence, accurate diagnosis facilitated by appropriate radiological investigations with subsequent histopathological confirmation is mandatory.

### References

1. Grosfeld JL, Ballantine TVN, Lowe D, Baechner RL. Benign and malignant teratomas in children: analysis of 85 patients. *Surgery* 1976; 80: 297-305.
2. Gnegler JS, Ashcraft KW, Slattery P. Gastric teratoma: the sixth reported case in a female infant. *J Pediatr Surg* 1995; 30:889-90.
3. Gangopadhyay AN, Pandit SK, Sinha A, et al. Gastric teratoma-review of literature. *Indian J Pediatr* 1992; 59: 541-4.
4. Senocak ME, Kale G, Buyukpamukcu N, Hicsonmez A, Caglar m. Gastric teratomas in children including the third reported female case. *J. Pediatr surg.* 1990; 25: 681-684.
5. Moriuchi A, Nakayama I, Muta h, Tiara Y, Takahara O, Yokoyama S. Gastric teratomas in children - a case report with review of literature. *Acta path Jap* 1977; 27: 749-758.
6. Cairo MS, Grosfeld JL, Wheetman RM. Gastric teratomas: unusual cause for bleeding of the upper gastrointestinal tract in the newborn. *Pediatrics* 1981; 67: 721-724.

7. Mahour GH, Woolley MM, Trivedi SN, Landing BH. Teratomas in infancy and childhood: experience with 81 cases. *Surgery* 1974; 76: 309-318.
8. Ganopadhyay AN, Pandit SK, Gopal CS. Gastric teratomas revealed by gastrointestinal hemorrhage. *Ind. Pediatrics* 1992; 29: 1145-1146.
9. Mohan V, Gupta SK, Chooramani S, Arora M. Gastric teratomas in infancy. *Ind. Journal of radiology*. 1980; 36: 239-241.
10. Bowen B, Ros PR, MC Carthy MJ, Olmsted WW, Hjernstad BM. Gastric teratomas: CT and US appearance with pathologic correlation. *Radiology* 1987; 162: 431-433
11. Bowen B, Ros PR, McCarthy MJ, Olmsted WW, Hjernstad BM. Gastrointestinal teratomas: CT and US appearance and pathologic correlation. *Radiology* 1987; 162:431-433.
12. Gupta DK, Srinivas M, Dave S, Agarwala S, Bajpai M, Mitra DK. Gastric teratoma in children. *Pediatr Surg Int* 2000; 16:329-332.
13. Bourke CJ, Mackay AJ, Payton D. Malignant gastric teratoma: case report. *Pediatr Surg Int* 1997; 12:192-193.
14. Dunlap JP, James CA, Maxson RT, Bell JM, Wagner CW. Gastric teratoma with intramural extension. *Pediatr Radiol* 1995; 25:383-384.