

## Malignant Gastric Teratoma in an Infant

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### Summary

Malignancy in gastric teratomas is extremely rare. Such teratomas are widely accepted and treated as benign lesions. A malignant gastric teratoma treated by total excision is presented. According to our knowledge, this is the second case of gastric teratoma having a malignant histology.

### Key words

Gastric teratoma – Malignant teratoma

Malignes Magen-Teratoma bei einem Säugling

Maligne Magen-Teratome sind äußerst selten. In dieser Arbeit wird ein malignes Magen-Teratoma vorgestellt, das durch vollständige Exstirpation geheilt werden konnte.

Unseres Wissens ist dieser Fall auch histologisch gesichert.

### Schlüsselwörter

Magen-Teratoma – Malignes Teratoma

Only 53 cases of gastric teratoma have been reported up to date making less than 1% of all teratomas. They were reported as sporadic cases rather than large series, having unusual properties, such as presenting with gastrointestinal bleeding (5, 8), perforation (2) and causing premature labour and dystocia (7). No malignant gastric teratoma has been reported until Ravikumar et al (12) reported their case having immature neural elements, which they thought to be malignant (12).

### Case report

A 2.5-month-old male infant was admitted to our department with an abdominal mass. Nothing extraordinary was de-

scribed in the history including gestational and neonatal period. The well-fed baby weighing 7 kg had a palpable mass in the left upper quadrant of the abdomen extending to the umbilicus. The physical examination was otherwise normal. Plain radiogram of the abdomen showed an opacity in the left upper quadrant, no calcification was observed. Ultrasonography revealed that the solid mass contained cystic areas. Intravenous urogram was normal. At operation a huge localised encapsulated tumour attached to the posterior wall of the stomach with a 2.5 cm stalk, was removed. Biopsies were obtained from mesenteric lymph nodes. The baby recovered uneventfully.

Because the tumour was localised and totally excised, chemotherapy or radiotherapy were not applied. He is alive and well 12 years after tumour removal.

The tumour was lobulated and weighed 750 g, sized 15 × 11 × 7 cm, cut section included cystic and solid areas. Solid areas were encephaloid in appearance. A piece of gastric wall and two lymph nodes in 0.5 cm diameter were also examined.

On microscopic examination nearly whole part of the cut section of tumour mass was examined. Immature cartilage and loose mesenchymal tissues were seen besides the mature cartilage, bone, cerebral and cerebellar tissues. The islands of neuroblast-like cells and the structures seemed like neural tube and the retinal structures with melanin pigment were also seen. Cystic structures were lined by epithelial cells with immature appearance and high cylindrical epithelium. Wide areas of tumour necrosis were seen. The examination of the lymph nodes showed nonspecific reactive hyperplasia. Gastric mucosa was normal (Fig. 1).

### Discussion

Teratomas are true tumours or neoplasms composed of multiple tissues of kinds foreign to the parts in which they arise (1-4). They are most commonly seen in sacrococcygeal, ovarian and mediastinal sites. Retroperitoneum,



Fig. 1 Photomicrograph showing cartilage, mesenchymal tissue and neuroectodermal canals (H.E. × 110)

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Table 1

Case No	Author	Year	Patients Age	Sex	Tumor size	Treatment	Outcome
1	Eusterman (6, 7)	1922	31	M	7 × 6 × 5 cm	Excision	Recovered
2	Eusterman (6)	1922	8	M	1000 g	Excision	Recovered
3	Polony (1, 6, 7, 10)	1936	8	M	1000 g	Excision	Recovered
4	Selman (1, 6, 7, 10)	1943	3/12	M	15 × 10 × 8 cm	Excision	Recovered
5	Large (1, 6, 7, 10)	1952	1/12	M	5 cm	Subtotal gastrectomy	Recovered
6	Handelsman (1, 6, 7, 10)	1955	4/12	M	12 × 8 × 6 cm	Excision	Recovered
7	Reggianini (1, 6, 7, 10)	1955	1/12	M	690 g	Excision	Recovered
8	Lodzinski (1, 6, 7, 10)	1956	5/365	M	12 × 8 × 6 cm	Excision	Recovered
9	Fuji (6)	1957	13	M	140 g	Excision	Recovered
10	Sarinana (1, 6, 7, 10)	1958	45/365	M	990 g	Partial gastrectomy	Recovered
11	Obermedermayr (6)	1959	Neonate	M	-	Excision	Recovered
12	Cooray (1, 6, 7, 10)	1959	45/365	M	One-half stomach	No surg.	Died
13	Marty (6)	1959	2/12	M	400 g	Partial gastrectomy	Recovered
14	Ravitch (1, 6, 7, 10)	1960	10/12	M	15 × 13 × 10 cm	Partial gastrectomy	Recovered
15	Makonouchi (6)	1960	6/12	M	1700 g	Excision	Recovered
16	Fadeeva (6, 7)	1960	25	M	4 × 3 cm	Partial gastrectomy	Recovered
17	Bakunai (10)	1960	Neonate	M	-	-	Recovered
18	Wagenmann (1, 6, 7)	1961	15/365	M	-	-	Recovered
19	Lee (1, 6, 7)	1962	1/365	M	10 × 8 × 6 cm	Excision	Died
20	Paul (1, 6, 7, 10)	1962	9/12	M	8 × 6.6 cm	Excision	Recovered
21	Keeley (1, 6, 7, 10)	1963	1/365	M	10 × 9 × 7 cm	Excision	Recovered
22	Verhaak (1, 6, 7)	1963	15/365	M	4 × 3 × 3 cm	Partial gastrectomy	Recovered
23	Chatterjee (1, 6, 7, 10)	1964	2	M	18 × 16 × 6 cm	Excision	Recovered
24	Panabokee (1, 6, 7, 10)	1964	2/12	M	10 × 5 cm	No surg.	Died
25	Gray (6, 7)	1964	40	M	7 × 6 cm	Excision	Recovered
26	Ikeda (1, 6, 7)	1965	3/12	M	13 × 10 × 4 cm	Excision	Recovered
27	Ikeda (6, 7)	1965	3	M	15 × 10 × 10 cm	Excision	Recovered
28	Singh (6)	1966	3/12	M	-	Excision	Died
29	Cozzi (1, 6, 7, 10)	1967	1/365	M	11 × 9 × 6 cm	Excision	Recovered
30	Atwell (10)	1967	1/365	M	10 × 8 × 7 cm	Partial gastrectomy	Recovered
31	Atwell (1, 6, 7)	1967	1/365	M	12 × 8.5 × 7 cm	Excision	Recovered
32	Kopecky (6, 10)	1968	Neonate	M	-	Excision	Recovered
33	Meadow (7)	1968	1/365	M	13.2 × 12 × 5.5 cm, 450 g	Excision	Recovered
34	Giacomono (6, 7)	1968	1/12	M	15 × 12 × 12 cm	Excision	Recovered
35	De Angelis (1, 6, 7, 10)	1969	1/365	M	490 g	Total excision	Recovered
36	Labreuil (1, 7)	1969	16/12	M	12 cm diam., 620 g	Excision	Recovered
37	Aubrespy (6, 7)	1970	1/365	M	540 g	Partial gastrectomy	Recovered
38	Waldschmidt (6)	1970	Neonate	M	-	Excision	Recovered
39	Malias (7)	1971	3/12	M	7 cm diam., 140 g	Excision	Recovered
40	Hofmann (6)	1971	3/12	M	1050 g	Excision	Recovered
41	Hollwarth (6)	1972	5/12	M	410 g	Excision	Recovered
42	Agarwal (10)	1972	3/12	M	15 × 10 × 5 cm	Excision	Recovered
43	Nandy (10)	1974	5/12	M	16 × 15 × 7 cm	Excision	Died
44	Azpiroz (1)	1974	8/12	M	11 × 7.5 × 6.5 cm	Partial gastrectomy	Recovered
45	Siegel (13)	1978	Infant	M	-	-	Recovered
46	Siegel (13)	1978	Infant	M	-	-	Recovered
47	Purvis (1)	1979	1/12	F	9.5 × 6.4 × 4.2 cm	Excision	Recovered
48	Mitchell (8)	1981	Neonate	M	-	-	Recovered
49	Esposito (4)	1983	1/365	F	10 × 6 × 6 cm	Partial gastrectomy	Recovered
50	Earnshaw (3)	1985	Neonate	M	-	-	Recovered
51	Ravikumar (12)	1986	40/365	M	500 g	Excision	Recovered
52	Haley (5)	1986	10/365	M	2.7 cm	Partial gastrectomy	Recovered
53	Montalvo (9)	1987	Neonate	F	-	-	Recovered
54	Balik (our case)	1989	25/12	M	15 × 11 × 7 cm, 750 g	Excision	Recovered

head and neck and testes are some of the other sites of origin less frequently seen. Gastric teratomas comprise less than 1% of most series (14). An overall rate of malignancy of 20% has been reported in large series of teratomas (14), but the only probable malignant gastric teratoma having immature neural elements was the case reported by Ravikumar et al (12). The rarity of malignancy in gastric teratomas may be related to the rarity of gastric teratomas between the other sites of origin. Since, only 53 cases of gastric teratomas were reported in the literature up to date (1-14) (Table 1).

Our case of gastric teratoma showed all the histopathologic criteria of malignancy. Simple excision of the tumour appears to be the treatment of choice in gastric teratomas. All areas of the tumour should be searched carefully by histopathological examination, because they may have immature components which are accepted to be malignant.

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