

## Gastric Tumors and Protein Losing Enteropathy

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### ABSTRACT

2 patients presented with exudative gastropathy, anemia and severe hypoproteinemia. A 9 years old boy had hypertrophic glandular gastritis, involving almost all of the stomach and the other, a 4 month's old boy, had an undifferentiated Teratoma at the level of the lesser curvature. Endoscopy was performed in both, leading to the definitive diagnoses in the 1<sup>st</sup> but not in the 2<sup>nd</sup>, in whom it could only be obtained in the operative specimen. The 1<sup>st</sup> had a total gastrectomy and the 2<sup>nd</sup> a partial gastrectomy, with lymph node dissection, associated with a pyloromyotomy and partial fundoplication. Both have remained cured and are living a normal life.

**Keywords:** Gastric Tumors, Protein Losing Enteropathy, Hypoproteinemia

### Introduction and Objectives

To call attention to an unusual form of presentation of gastric lesions in children, namely a Teratoma and Hypertrophic Glandular Gastritis (Menétrier's Disease), associated with anemia and protein losing enteropathy, that required rare and extensive surgery, but remained having a normal life.

### Material and Methods

We present 2 caucasian male Patients with exudative gastropathy, causing severe hypoproteinemia, and anemia: a benign Teratoma and a Hypertrophic Glandular Gastritis [1].

### 1<sup>st</sup> Patient

Nine years old caucasian boy complaining for 5 months from unexplained vomits after meals, with no other symptoms except increasing palpebral edema. Due to the worsening of the vomiting and the appearance of diarrhea, with dark stools, he was admitted to the Hospital as an emergency and found to have severe ascites as well as edema of the scrotum and lower limbs.

Gastroduodenoscopy revealed chronic superficial gastritis, grade I.

Cytology was not conclusive but did not show malignant cells. The final diagnoses came only from the operative specimen.

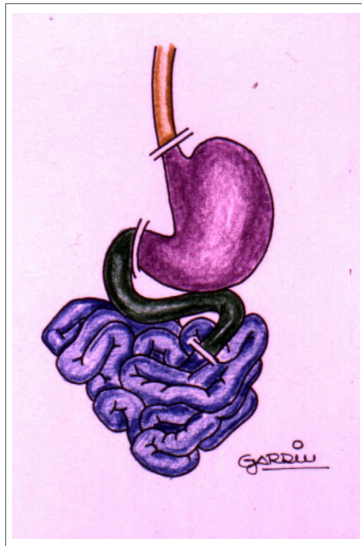
A barium meal showed an important subtraction image, at the level of the lesser curve, due to space occupying lesion (Figure 1).



**Figure 1:** Schematic representation of the resection levels: gastroesophageal junction and 1<sup>st</sup> duodenal portion

Laboratory examinations showed 3.5g/dl of proteins, 1.94g/dl of albumin, and 6 mg/dl gamma globulin. Immunoelectrophoresis confirmed the hypoproteinemia, involving all protein fractions, particularly the IgG, but with no significant qualitative alterations [1].

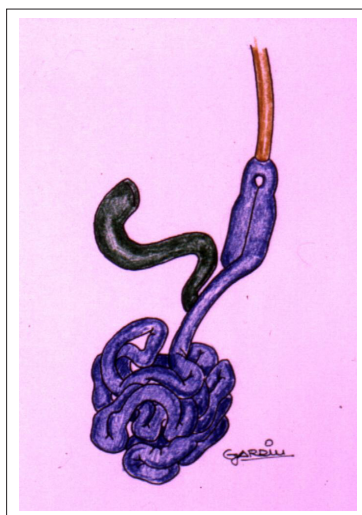
Under general anesthesia, an exploratory laparotomy was performed, showing the presence of lesion occupying practically the whole stomach wall, which led to a total gastrectomy by a modified Lima Bastos's technique (small upper jejunal loop, as an anti-reflux procedure). (Figure 2, 3, 4)



**Figure 2:** Duodenum closed, jejunum sectioned near the angle of Treitz, opening partially its distal portion (with a skipped, non-opened, zone) at its antimesenteric border



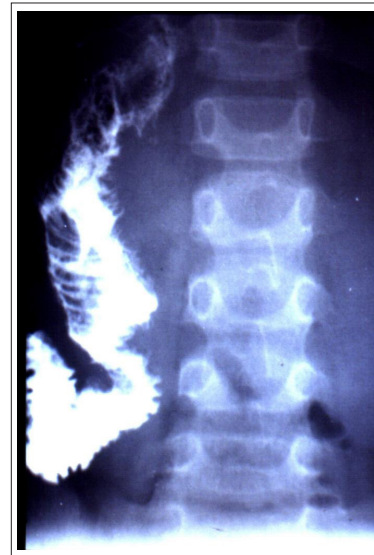
**Figure 3:** Anastomoses completed: small jejunal loop ring anastomosed to the esophagus (termino-lateral) To isolate the neo-gastric pouch formed by the latero-lateral anastomoses of the previously separate jejunum distal incisions. Termino lateral duodeno-jejunal anastomosis, after a short parallel run



**Figure 4:** Barium meal showing the absence of esophageal or duodenal reflux and a good size neo-gastric pouch

Soon after surgery blood values returned rapidly to normal: Histologic examination disclosed a Chronic Glandular Hypertrophic Gastritis, with inflammatory signs. A control barium meal showed a good neo-gastric pouch, (Figure 4) with no reflux either to the esophagus or the duodenum, and the Patient was started on a practically normal diet. He has ever since developed normally, being now a healthy adult, eating freely (but taking supplemental vitamin B12).

**2<sup>nd</sup> Patient:** (Figure 5)



**Figure 5:** CT showing a large heterogeneous gastric tumor

Three months old caucasian boy, admitted to Hospital because an upper respiratory tract infection, and found to have marked hypoproteinemia (3.2g/dl total proteins, 0.7g/dl albumin) anemia (5.7g/dl Hg and 2.270.000 red cells) and thrombocytosis (platelets 1.000.800). Alpha-fetoprotein was compatible with age (161 UI/ml) An hematest was positive [2-4].

Endoscopy showed a tumoral mass based, at the lesser curvature, but the biopsies taken were not conclusive, in view of the tumor's appearance and considering the most frequent (although always rare) gastric tumors of infancy, a provisional diagnosis of Rhabdomyosarcoma? Teratoma? was made.

An helicoidal CT scan showed a large well defined space occupying tumor mass, of, large implantation base, at the middle and upper part of the lesser curvature, could be seen. The tumor was removed together with a collar of the normal stomach wall. Also, some conglomerate lymph nodes (at the level of the lesser curvature) were removed (and proved normal on histological examination). Histology confirmed the diagnosis of a Mature Teratoma, associated with exudative gastropathy. A partial, atypic, gastrectomy was performed, associated with a left lateral fundoplication (½) and a pyloromyotomy.

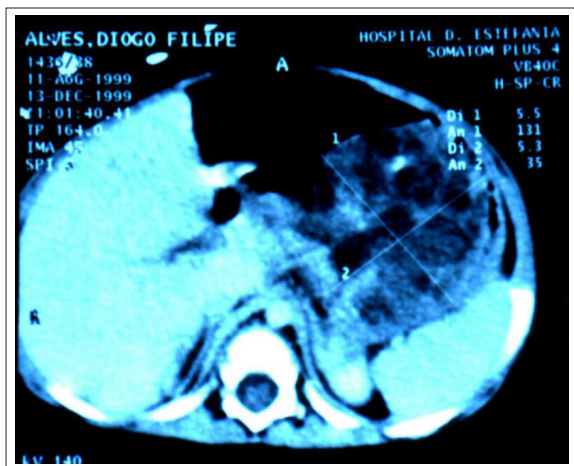
### Results and Discussion

In none of the Patients the tumor could be felt on palpation, both of them showing misleading signs when admitted to the Emergency Department. One had marked anasarca, due to the severe hypoproteinemia), associated with diarrhea and dark stools. The other had an acute respiratory infection and, on normal testing, severe hypoproteinemia was also disclosed [1,5].

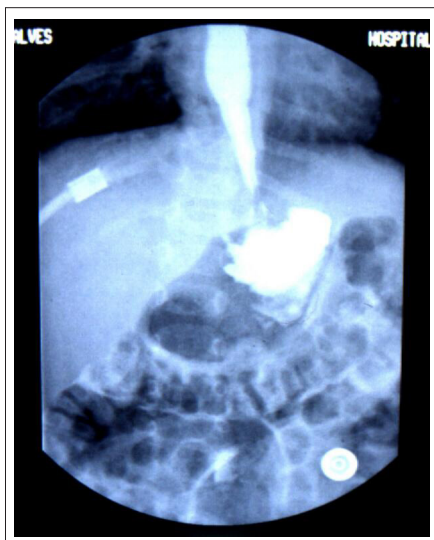
In both endoscopies were inconclusive and only the operative specimen led to the final diagnosis.

Exudative enteropathy is a well-known entity, but its association with a gastric tumor is certainly rare. Although anemia is a normal finding in gastric lesions, an associated protein losing enteropathy has not, to our knowledge, so far been reported. That was one of the reasons why the origin of the hypoproteinemia (Menétrier's Disease and Gastric Teratoma) was not immediately considered.

A personal modification of Lima Basto's technique was used for the total gastrectomy, using a neo gastric double ileal pouch with an anti-reflux upper ring. (Figure 6 and 7).



**Figure 6:** Barium meal showing the cardia after fundoplication (2<sup>nd</sup> Patient)



**Figure 7:** Barium meal showing the good size of the remaining stomach (2<sup>nd</sup> Patient)

### Conclusions

Both operations had uneventful recoveries and were curative, only the 1st patient, who had the total gastrectomy, still requires supplementary Vit. B12. Surgery is thus the treatment of choice, with the patients rapidly recovering and reaching an adult's normal life.

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