Primary gastric choriocarcinoma: A rare case

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ABSTRACT

INTRODUCTION: Primary gastric choriocarcinoma accounts for 0.08% of all gastric cancers. It is a rapidly growing, widely metastatic and β-HCG-producing tumour of trophoblastic cells.

PRESENTATION OF CASE: A 69-year-old white man presented to the hospital with symptomatic anaemia. An upper gastrointestinal endoscopy showed an ulcer of the cardia and lesser curvature, whose biopsy specimens proved to be malignant (carcinoma cells, non-specified). The patient underwent total gastrectomy with D2 lymphadenectomy. A histologic evaluation revealed a choriocarcinoma admixed with adenocarcinoma cells without lymph node metastases. The patient died from haemorrhagic shock, due to rupture of liver metastases and a massive haemoperitoneum, within 2 months of the initial presentation.

DISCUSSION: Primary gastric choriocarcinoma characteristics resemble those of gastric primary adenocarcinoma. The dedifferentiation theory is the most widely accepted theory to explain the pathogenesis of PGC. It is essential to rule out other possible primary lesions such as testicular tumour. The optimal treatment is not yet well established due to very few reported cases.

CONCLUSION: Primary gastric choriocarcinoma is a rare tumour with an aggressive behaviour and very poor prognosis.

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1. Introduction

Choriocarcinoma is a rapidly growing, widely metastatic and β-HCG (human chorionic gonadotropin)-producing tumour of trophoblastic cells. Most cases arise in the uterus following gestational events (e.g. normal or ectopic pregnancy or abortion). It can also be gonadal (ovary and testis) or extragonadal (e.g. lung, gastrointestinal tract, mediastinum or retroperitoneum) in origin [1–5].

First described by Davidson and Hotten in 1905, primary gastric choriocarcinoma (PGC) is extremely rare, accounting for approximately 0.08% of all gastric cancers [6,7]. Most PGCs possess an adenocarcinoma component of variable magnitude and pure PGC is rare. Clinical presentation is similar to gastric adenocarcinoma, however it is more frequently a cause of gastrointestinal bleeding given its striking vascularity [8]. Definitive diagnosis by endoscopic biopsy is rare (8%) and most such cases are diagnosed after surgery [1,6].

The authors report a case of PGC admixed with an adenocarcinoma component in a male patient.

2. Presentation of case

A 69-year-old white man presented to the emergency department with chief complaints of chest pain, nausea, sweating and shortness of breath for a couple of hours' duration. His past medical history was significant for coronary artery disease. He had had a previous myocardial infarction and had been submitted to coronary stent placement. His medication included two antiplatelet drugs (aspirin and clopidogrel).

Physical examination was significant only for pale skin. The remainder was unremarkable. Laboratory values on admission showed severe anaemia (haemoglobin of 3.9 g/dL and haematocrit of 14.1%) and normal platelet count. The serum albumin levels, liver function tests, chemistry panels and cardiac markers were also normal. A 12-lead electrocardiogram revealed no acute findings.

An upper gastrointestinal endoscopy disclosed a 5-cm-diameter exophytic ulcer with necrotic areas and stigmata from recent bleeding on the cardia and proximal lesser curvature. A histopathologic examination of biopsy tissues (7 fragments) revealed carcinoma cells with highly pleomorphic nuclei and atypical mitotic figures. An immunohistochemical study showed strong positive to pancytokeratin AE1/AE3 and CAM 5.2.

A computed tomography (CT) scan of the pelvis and abdomen visualized a gastric mass with deep central ulceration, arising from the gastric fundus and extending to the cardia and proximal lesser curvature. There were two suspicious microscopic lesions on the liver. No lymph node metastasis or testicular abnormalities were observed. A chest X-ray was normal. A gastrointestinal X-ray examination demonstrated an ulcerated lesion with a distinct elevation occupying the cardia, the anterior aspect of the proximal lesser curvature and the fundus. Tumour markers (CEA, CA 19.9, CA 125)
Based on pathological findings and in the absence of a testicular mass, the patient was diagnosed with PGC with an adenocarcinoma component. The post-operative course was uneventful and he was discharged 9 days after surgery.

He returned to the emergency department with complaints of sudden right upper quadrant abdominal pain, vomiting and severe anaemia (3.7 g/dL), 12 days after discharge. A repeated CT scan of the abdomen revealed multiple liver metastases in the right and left lobes. Some lesions had ruptured causing a massive haemoperitoneum, confirmed by paracentesis (Fig. 5). Despite efforts to resuscitate the patient, this was a terminal event. The patient died from haemorrhagic shock, 40 days after initial presentation.

3. Discussion

Primary gastric choriocarcinoma is a rare and highly aggressive tumour characterized by the presence of a double cell population and early metastases, especially in the liver, lung and regional lymph nodes [7,9]. Several theories have been proposed to explain the pathogenesis of PGC. The most widely accepted is the dedifferentiation theory. First proposed by Pick in 1926 [10], this theory showed a dedifferentiation of the malignant gastric adenocarcinoma cells to the level of the embryonal endoderm, retaining the ability to form trophoblasts [11,12]. Pure choriocarcinoma would arise through overgrowth and elimination of the original adenocarcinoma [9]. Supporting this theory is the finding that PGC characteristics resemble those of gastric primary adenocarcinoma: mean age of onset, male--female ratio, tumour location and similar geographic distribution [9,13]. Additionally, 71% of PGCs are associated with poorly differentiated adenocarcinoma and less than 25% are pure choriocarcinoma [8,14]. According to Noguchi et al., 70% of PGCs have an adenocarcinoma component and most patients have early metastases [6]. Liu et al. reported that PGC genetically possesses characteristics of both adenocarcinoma and gestational choriocarcinoma [15]. This tumour has haematogenous dissemination as opposed to lymphatic spread of gastric adenocarcinoma [12].

Despite the generalized acceptance of the dedifferentiation theory, one question remains: what is the role of HCG-producing cells, normally present in the gastric mucosa? Yakeishi et al. demonstrated the existence of HCG-producing cells in choriocarcinomas as well as in adenocarcinomas and in the normal gastric mucosa, in different proportions. Normal gastric cells with the ability to
produce HCG directly may develop into a de novo PGG, without a preceding adenocarcinoma (e.g. some pure forms of PGC) [9].

Histologically, there is a combination of malignant cytotrophoblasts and syncytiotrophoblasts, in most cases admixed with adenocarcinoma cells [8]. Trophoblastic cells stain positive for β-HCG in immunohistochemistry and most cases are accompanied by elevated serum β-HCG. Serum β-HCG has no prognostic significance but may be useful for evaluating response to treatment and tumour recurrence [8,12].

Differential diagnosis of PGC is a metastatic trophoblastic tumour from other sites, which are more frequent than PGC [12]. It is crucial to rule out other possible primary lesions and to confirm that β-HCG becomes normal after tumour resection. The treatment of choice has not been established. Current treatment includes gastrectomy with lymphadenectomy, since most PGCs are known to have an adenocarcinoma component, combined with chemotherapy [14]. There is no established regimen of chemotherapy for PGC [1].

The prognosis is considerably worse than that of gastric adenocarcinoma. Most patients have early metastases in the lung, liver and regional lymph nodes [8,9]. The mean survival time is less than 2 months [14]. Most patients die of hepatic failure due to liver metastases and bleeding from the primary/metastatic tumour [6].

4. Conclusion

Primary gastric choriocarcinoma is a rare tumour with an aggressive behaviour [1,4]. The optimal treatment has not yet been established due to very few reported cases and patients have a very poor prognosis [11].

Conflicts of interest

None.

Funding

None.

Ethical approval

Approved by the ethics committee of the Hospital Santo António, Centro Hospitalar do Porto. Document available on request.

Consent

Written informed consent was obtained from the patient next of kin for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal, on request.

Author contributions

Virola Florencia Martins—Design of article, research, manuscript, revision and approval.
Filipa Moreno—Pathological report, photographs, design, revision and approval.
J. Ramón Vizcaíno—Pathological report, analysis, revision and approval.
Jorge Santos—First surgeon and patient assistant, conception and design of article, consultant, manuscript, final revision and approval.

Guarantor

Vilma Florença Martins (1st author).
Jorge Santos (4th author).

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