Gastrocutaneous fistula: case report and literature review

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Abstract

We report the case of a 91-year-old lady who presented with a gastrocutaneous fistula in the absence of any recent surgery. We review the literature and discuss this uncommon surgical problem.

Keywords

Gastrocutaneous fistula; gastric ulcer.

Case report

A 91-year-old lady presented with a 2-week history of pain over the left anterior chest wall. She described “foul-smelling” nipple discharge which was not blood-stained. She was treated by her GP with antibiotics but the pain gradually worsened and she was now describing a “whistling” noise when discharging. Her past medical history included a gastric ulcer and a left mastectomy carried out 30 years ago for carcinoma of the breast. She did report having problems with the healing of the mastectomy scar but a biopsy done 3 years previously was clear.

On examination, there was significant erythema around the left anterior chest wall with pus discharging from a small hole measuring 0.5 mm × 0.5 mm (Fig. 1). Her chest radiograph (Fig. 2) revealed shadowing in the left subchondral space but the lung fields were clear.

A provisional diagnosis of chest wall abscess was made and she was started on intravenous antibiotics. On the following day undigested food was discharged from the left anterior chest wall (Fig. 3). An oesophageal/gastrocutaneous fistula was suspected and she underwent a computed tomography (CT) scan with contrast of her chest and abdomen (Fig. 4).

The CT scan demonstrated a soft tissue abnormality along the left anterior chest wall communicating with the underlying greater curvature of the stomach. The findings were consistent with suspected chest wall abscess communicating with the stomach. She also underwent gastroscopy which demonstrated an ulcer associated with a fistula approximately 1 cm in diameter. Multiple biopsies were sent for histopathological examination which did not reveal any evidence of malignancy. She eventually underwent excision of the ulcer and the fistula...
and the defect was repaired with a myocutaneous flap. Histological examination of the excised specimen confirmed the presence of active chronic inflammation of the gastric mucosa but there was no evidence of *Helicobacter pylori* infection, dysplasia or neoplasia. Section of the skin showed extensive necrotic ulceration and the dermis displayed elastotic degeneration and active chronic inflammation and fibrosis. The adipose tissue also revealed focal fat necrosis.

Her post-operative recovery was uneventful and a gastrograffin swallow did not reveal any abnormalities. The patient was reviewed in the outpatient clinic after 2 months and she was eventually discharged from follow up. The full diagnosis was gastrocutaneous fistula associated with benign gastric ulcer.

![Fig. 1.](image1.png) Left anterior chest wall cellulitis and a small defect can be seen.

![Fig. 2.](image2.png) Chest radiograph demonstrating left subchondral shadowing.
A fistula is a well documented but infrequent surgical complication that requires prompt diagnosis as it can increase patient morbidity and mortality\cite{1}. Reviews of gastrointestinal fistulae have shown that pure gastrocutaneous fistulae are uncommon with an incidence ranging between 2\% and 20\%\cite{2}. The vast majority usually involve the greater curvature of the gastric fundus following surgery. In particular, they are most likely to arise from leakage of gastroduodenal or gastrojejunal anastomosis after gastrectomy or following splenectomy\cite{2,3}. Gastrocutaneous fistulae may also be seen after removal of long standing gastrectomy tubes, especially in the paediatric population\cite{4}. The defect does not close spontaneously if the gastrostomy has been used for a long time, if there is delayed gastric emptying/obstruction, foreign body (e.g. silk suture which should be avoided when constructing a gastrostomy), or associated chronic granulomatous disease such as Crohn’s\cite{4,5}. The presence of

![Undigested food material discharged via a gastrocutaneous fistula.](image1)

![Computerised tomography showing communication between the stomach and anterior chest wall.](image2)
a gastrostomy tube for more than 9 months is associated with a 45% incidence of gastrocutaneous fistula\[^5\].

In our case, there was no history of recent surgery so the most likely cause of the fistula appears to be her benign gastric ulcer causing chronic inflammation and tissue erosion. This is a rare presentation and, we believe, has been reported in the literature only once previously\[^2\].

The aetiology of gastric fistulae is not well understood. Ischaemic gastric necrosis has been postulated as playing an important role in the development of gastrocutaneous fistulae but it has never been conclusively proven in the clinical setting\[^2\]. In the case reported here, histopathological examination showed chronic inflammation of the gastric mucosa and necrosis of the skin and subcutaneous fat so devascularisation secondary to chronic inflammation appears to be implicated in the pathogenesis of a fistula.

The initial management of a gastrocutaneous fistula aims to increase gastric emptying (e.g. metochlopramide), increase gastric pH (e.g. lansoprazole) and decrease intragastric pressure\[^4,6\]. Kobak and colleagues reported a 53% fistula closure rate following tract cauterisation with silver nitrate and use of H2 antagonist\[^4\]. Deruyter et al. reported two successful cases of fistula closure with omeprazole and total parenteral nutrition\[^7\].

Pearlstein and colleagues reported spontaneous closure of gastrocutaneous fistulae in 70% of patients with conservative measures\[^2\]. More recently, other researchers reported fistula closure with minimally invasive procedures such as the application of endoclips, fibrin glue or collagen plugs\[^6,8,9\]. In addition, Makris and Sheiman reported fistula closure using a three-step technique: (1) cauterisation of the fistula with silver nitrate to denude the tract of its epithelial lining; (2) mechanical obliteration with Gelfoam pledgets; and (3) tract sclerosis using betadine\[^10\]. Invariably, there will be a certain number of gastrocutaneous fistulae refractive to medical management or minimally invasive procedures. In those cases, surgical excision is indicated\[^2,6\].

**Teaching point**

In the absence of malignant disease or gastric outlet obstruction, gastrocutaneous fistulae should be managed non-operatively. Spontaneous closure can be anticipated for the majority of cases within a few weeks. Surgical excision should be reserved for gastrocutaneous fistulae intractable to other forms of therapy.

**References**