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The development of spontaneous colo-umbilical fistula

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Summary: A patient with colo-umbilical fistula is reported. This presentation is unique because it documents the development of a fistula from a colonic diverticulum. Sigmoid colectomy was undertaken successfully.

Introduction

Entero-umbilical fistulas are rare¹ and in most cases there is a predisposing cause. Here we describe a case of a fistula that developed from a diverticulum of the sigmoid colon that discharged through the umbilicus. To our knowledge, a spontaneous colo-umbilical fistula has not been described previously. We discuss the pathophysiology and the rationale for surgical management.

Case report

A 76 year old male retired engineer was admitted in September 1992 with a faecal discharge from the umbilicus. Two years previously, an asymptomatic abdominal mass palpable below the umbilicus had been identified on routine physical examination by his general practitioner. Computerized tomography (CT) studies of the abdomen had revealed that the mass arose from the pelvis, lying caudal to the umbilicus and anterior to the sigmoid colon. Although this structure was filled with air, open communication with the lumen of the sigmoid colon could not be demonstrated on CT scan. A

provisional diagnosis of a giant colonic diverticulum was made and a conservative approach adopted since the patient was asymptomatic and in poor general health secondary to diabetes and previous cerebral infarct. A CT scan some 18 months later revealed an air-filled sinus that now communicated with the umbilicus, yet the patient remained asymptomatic (Figure 1). Five to 6 weeks prior to admission, the patient experienced constipation with intermittent diarrhoea. This coincided with the onset of a faecal discharge from his umbilicus.

On examination he was afebrile and well nourished. The abdomen was soft, non-tender, and with a fixed palpable mass in the hypogastrium and left iliac fossa. Haematological and biochemistry studies were within normal limits. A barium enema study demonstrated a 7 cm stricture of the sigmoid colon with a small perforation emptying into the cavity, identified previously by CT scan (Figure 2).

Laparotomy was performed through a midline incision and a large cavity in the preperitoneal space was entered. This was not a colonic diverticulum and was lined with granulation tissue. It communicated with the umbilicus and a large perforation in the sigmoid colon. A sigmoid colec-

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tomy with primary anastomosis was performed and a drain placed in the cavity. Histopathology revealed that the serosal surfaces of the sigmoid

colon were haemorrhagic with numerous diverticula. The patient recovered uneventfully.

Discussion

Fistulas of the umbilicus are rare and often represent a postoperative complication of abdominal surgery.² A few case reports describe other novel aetiologies of umbilical fistulas, including: an omphalocyst,³ a patent urachus,⁴ and an umbilical hernia.⁵ Similarly, a utero-umbilical fistula has been documented following a cesarean section,⁶ and urinary obstruction has led to a vesico-umbilical fistula.⁷ Neurosurgical appliances such as a ventriculoperitoneal shunt can also produce an umbilical fistula.^{8,9}

Between 2.3% and 5.5% of entero-cutaneous fistulas are spontaneous,^{2,10,11} and only a small proportion of these would be of the entero-umbilical type. Spontaneous entero-umbilical fistulae have been associated anecdotally with Crohn's disease,^{1,11} tuberculosis peritonitis,^{12,13} and cholelithiasis leading to a spontaneous cholecysto-umbilical fistula.¹⁴ In this report the fistula probably resulted from a perforation of a diverticulum at a point on the anterior abdominal wall where the sigmoid colon was adherent, preventing a generalized peritonitis with tracking of the fistula to the umbilicus along a line of what had been formerly the urachus. A large preperitoneal cavity and evidence of colonic obstruction made spontaneous closure of the fistula unlikely, and surgical management was recommended.

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Figure 1 CT scan of the abdomen demonstrating extension of the cavity into the umbilicus.

Figure 2 Barium enema illustrating a stricture in the sigmoid colon and a focal perforation (arrow) with barium extravasation. Diverticular disease is also evident.

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