An 87-year-old man presented with fever (one month), abdominal pain (two days) and constipation (two days). Physical examination was suggestive of perforation with peritonitis. Scout films confirmed gas under the diaphragm and his chest X-ray was normal. Widal test was positive (1/250 titre) and blood culture sterile. Exploration revealed a small perforation in the terminal ileum and colon (near the resected margins). The involved gut was resected and both ends were again brought to the surface. Adequate supportive care was given in form of blood, plasma, albumin and intravenous lipids. Despite all these enthusiastic measures, the patient again developed a fecal fistula and succumbed on the third postoperative day. The biopsy report of the specimen sent at second surgery was received on the day of his death and revealed caseating granulomas in the excised tissue.

Question
What is the most likely cause of the gut perforation?
Answer

The duodenum is the commonest site of perforation, followed by the ileum. The differential diagnosis of a perforation in the small gut includes typhoid, trauma, foreign body, ascariasis, amoebiasis, actinomycosis, primary and secondary tumours, tuberculosis and idiopathic variety. Causes of multiple perforations in this part of the gut are trauma, typhoid, tuberculosis, amoebiasis (mainly in large intestine), myeloid leukaemia and Churg-Strauss syndrome.

Discussion

In the tropical countries, most ileal perforations are thought to be due to typhoid. Tuberculosis is seldom considered in the differential diagnosis of perforation peritonitis. The low incidence of tuberculous perforation (0-11% in adults, 3-4% in children) is due to a reactive thickening of the peritoneum and formation of adhesions to adjacent tissues. Most (90%) tubercular perforations are solitary and occur in the distal one meter of the ileum. These occur proximal to or at the site of a stricture but, in the ulcerative form, may occur in the absence of a stricture and may be multiple. The pre-operative diagnosis of this uncommon but grave complication is beset with difficulties. The clinical picture is often altered by an associated obstruction. Investigations may be misleading (leucocytosis and pneumoperitonium may be absent in 30 and 60%, respectively, and air/fluid levels may be present). The chest X-ray, though normal in 60-70% cases of abdominal tuberculosis, invariably shows a lesion in patients with perforation. The diagnosis should be suspected in patients with a previous history of recurrent subacute intestinal obstruction or evidence of tuberculosis on chest X-ray. The role of ATT in the prevention of gut perforation is not clear. Pre-operative serosal tubercles are seen in up to 65% cases.

Management of these cases is controversial and the following guidelines are advocated. In cases of extensive adhesions, no attempt should be made to locate the perforations. Peritoneal toilet and drainage should be done. In the case of a single perforation, simple closure with or without bypass is associated with an increased risk of leakage and a high mortality (31-45%). Resection with end-to-end anastomosis and right hemicolectomy (for associated cecal tuberculosis) are the standard procedures but in poor risk patients with extensive soiling, this is not safe and a minimal resection surgery is suggested. With multiple perforations simple closure is not recommended. Resection of the gut after grouping the lesions is preferred to massive resection. If it is not possible to remove the gut, a bypass procedure is done followed by radical surgery at a later date. Prout has recommended excision of the involved segment (when limited to terminal ileum), and ileotransverse colostomy as an initial procedure.

Final diagnosis

Perforation of the gut secondary to abdominal tuberculosis.

Keywords: ileal perforation, tuberculous perforation

Multiple ileal perforations.

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