Learning points

- hyperparathyroidism is a potentially reversible cause of global cognitive decline in the elderly
- dementia may occur in hyperparathyroidism with only mildly elevated serum calcium
- serial assessment of mental state and serum calcium whilst pharmacologically treating hypercalcaemia is important in establishing a causal link
- cognitive improvement may 'lag' behind reduction in serum calcium by some weeks

gradually improved, with MMSE of 20/30 three weeks postoperatively, and 23/30 after five weeks. She was discharged six weeks post-

operatively to residential care, at which time she was independently mobile, dressing herself, and requiring minimal prompting with hygiene. Continence had also improved with only occasional wetting at night. Two months after the parathyroidectomy her mental state had improved further with a MMSE score of 25/30 and normal clock drawing (figures 1 and 2D). Review six months later confirmed the clinical improvement.

Final diagnosis

Reversible dementia secondary to primary hyperparathyroidism.

Keywords: dementia; hypercalcaemia; hyperparathyroidism

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Multiple ileal perforations

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A 28-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 titres) and blood culture sterile. Exploration revealed a small perforation in an indurated terminal ileum with frank fecal peritonitis. The perforation was closed in two layers.

On the fourth postoperative day, the patient developed a fecal discharge from the drain site. Re-exploration revealed multiple perforations in the terminal ileum; the most distal at the ileocecal junction. The terminal ileum (with 15 cm of healthy gut) and ascending colon were excised and both ends were exteriorised. Biopsy from the wall of perforation, sent initially, was reported to be nonspecific. Three days later, the patient again had fecal discharge from the wound. Another re-exploration revealed a fresh crop of perforations in the 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?

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Answer

The duodenum is the commonest site of perforation, followed by the ileum.¹ The differential diagnosis of a perforation in the small gut² includes typhoid, trauma, foreign body, ascariasis, amoebiasis, actinomycosis, primary and secondary tumours, tuberculosis and idiopathic variety.³ Causes of multiple perforations in this part of the gut are trauma, typhoid, tuberculosis,³ amoebiasis (mainly in large intestine), myeloid leukaemia⁴ and Churg-Strauss syndrome.⁵

Discussion

In the tropical countries, most ileal perforations are thought to be due to typhoid.¹ Tuberculosis is seldom considered in the differential diagnosis of perforation peritonitis. The low incidence of tuberculous perforation (0–11% in adults,^{1,6} 3–4% in children,¹ 2.5–6% at autopsy¹ and 20% of all non-appendiceal perforations³) is due to a reactive thickening of the peritoneum and formation of adhesions to adjacent tissues.^{6,7} Most (90%) tubercular perforations are solitary and occur in the distal one meter of the ileum.¹ 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.³

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 pneumoperitoneum 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.⁷ The diagnosis should be suspected in patients with a previous history of recurrent subacute intestinal obstruction or evidence of tuberculosis on chest X-ray.⁸ The role of ATT in the prevention of gut perforation is not clear.^{6,8} Pre-operative serosal tubercles are seen in up to 65% cases.⁶

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.⁸ 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 leakage⁶ and a high mortality (31–45%).⁹ Resection with end-to-end anastomosis and right hemicolectomy (for associated cecal tuberculosis) are the standard procedures⁹ but in poor risk patients with extensive soiling, this is not safe and a minimal resection surgery is suggested.⁸ With multiple perforations simple closure is not recommended.¹⁰ Resection of the gut after grouping the lesions is preferred to massive resection.¹⁰ 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.⁷

Final diagnosis

Perforation of the gut secondary to abdominal tuberculosis.

Keywords: ileal perforation, tuberculous perforation

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