Late presentation of a congenital gastric diverticulum causing pyloric obstruction

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Summary: We report a case of adult pyloric obstruction caused by the delayed presentation of a congenital gastric diverticulum. The derivation, classification and treatment of these abnormalities are discussed.

Introduction

Gastric duplications are rare abnormalities that usually present in childhood. The following report details the presentation of a pyloric duplication in an adult.

Case report

A 24 year old man from West Africa was referred with a 4 week history of vomiting and severe weight loss. He ascribed his symptoms to the accidental ingestion of a quantity of car battery acid prior to which he had been completely well. He had been admitted to hospital with epigastric pain and dysphagia but these symptoms had settled with conservative management. They had been followed by the inability to retain solids or liquids, requiring his transfer for further assessment and treatment. He had a longstanding history of high alcohol intake, drinking 4 bottles of palm wine a day. He was emaciated and weighed only 56 kg but there were no other signs of note.

At gastroscopy the oesophagus was normal. The stomach contained residual barium from previous studies. After a washout no mucosal abnormality was detected but the pylorus could not be identified. A barium meal was performed. This demonstrated a grossly dilated stomach which did not empty. There was gross narrowing of the antrum in the pre-pyloric region with an associated diverticulum. A presumptive diagnosis of pyloric stenosis secondary to chronic duodenal ulcer disease was made. As this had not responded to a prolonged course of conservative treatment he underwent surgery.

At laparotomy a thickened pre-pyloric area was found distal to a markedly enlarged proximal stomach. A Bilroth I resection was performed and he made an uneventful recovery, being discharged on the seventh post-operative day taking full diet.

Histology of the excised specimen showed superficial erosion and focal haemorrhage in the pyloric mucosa with evidence of a diverticulum lined by gastric mucosa (Figure 1). This had a surrounding rim of smooth muscle in contact with a grossly thickened muscularis propria. The overall morphology favoured a congenital duplication (diverticulum) associated with hypertrophic muscularis propria which had caused gastric outlet obstruction.

Discussion

Duplications of the gastrointestinal tract are an uncommon group of abnormalities which usually present in the early years of life. The term duplication has been used to describe a large variety of differing structures with varying aetiologies.

There are several types of duplication which may be classified on the basis of their embryological derivation. Vitellointestinal remnants such as Meckel's diverticulum have a well-described origin and will not be discussed further. Dorsal enteric remnants arise from the abnormal splitting of the notocord and this can cause a wide variety of anomalies which may involve the viscera of the chest or abdomen often incorporating abnormal tissue remnants of enteric derivation.¹ They include combined spina bifida and allied vertebral anomalies together with defects in the development of the skin and subcutaneous tissues of the back.

It is now generally accepted that the term duplication refers to tubular or spherical anomalies intimately attached to the alimentary tract. Such abnormalities must also demonstrate the presence

Figure 1 Photomicrograph showing (a) congenital diverticulum and (b) associated muscle hypertrophy ($\times 6.5$).

of a smooth muscle wall and have a lining corresponding to some part of the gastrointestinal tract.²

Many theories have been proposed to explain the derivation of this group. These include the concept that describes nodules in embryonic gut which degenerate into cysts and eventually form diverticulae from the intestinal tract.³ A more logical explanation is that the vacuolization of the primitive gut occurring during the eighth and ninth weeks of life might result in cystic areas which later form spherical or tubular duplications.⁴

Gastric duplications are uncommon even in large series of paediatric cases.⁵ They are most often found on the greater curvature, are cystic and usually do not communicate with the lumen.⁶ In addition they normally present in infancy, the common clinical features being abdominal swelling, vomiting or a palpable mass. Occasionally they may rupture producing peritonitis or be associated with peptic ulceration and haemorrhage.⁷ A carcinoma has been described in an adult duplication.⁸

Gastric duplications can be excised by a limited gastrectomy but occasionally more extensive resection may be required. An alternative is to create a window in a dividing septum to form a common lumen but this is considered to be inferior to excisional surgery.⁹

Pyloric duplications are extremely rare even in childhood.¹⁰ The three cases reported so far have all presented in infancy mimicking the clinical picture of hypertrophic pyloric stenosis and were all cystic in nature. The case described in this paper represents a rare form of gastric duplication and its presentation in an adult has not been previously reported.

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References

1. Bentley, J.F.R. & Smith, J.R. Developmental posterior enteric remnants and spinal malformations. *Arch Dis Childhood* 1960, **35**: 76–78.
2. Ladd, W.E. & Gross, W.E. Surgical treatments of duplications of the alimentary tract: enterogenous cysts, enteric cysts or ileum duplex. *Surg Gynec Obst* 1940, **70**: 295–301.
3. Lewis, F.T. & Thyng, F.W. Regular occurrence of intestinal diverticula in embryos of pig, rabbit and man. *Am J Anat* 1908, **7**: 505.
4. Bremer, J.L. Diverticula and duplications of the intestinal tract. *Tract Arch Pathol* 1944, **38**: 132.
5. Basu, R., Forshall, I. & Rickham, P.P. Duplications of the alimentary tract. *Br J Surg* 1960, **47**: 477–481.
6. Bower, R.J., Sieber, W.K. & Kiesewetter, W.B. Alimentary tract duplications in children. *Ann Surg* 1978, **188**: 669–674.
7. Abrami, G. & Dennison, W.M. Duplication of the stomach. 1961, **49**: 794–801.
8. Orr, M.M. & Edwards, A.J. Neoplastic change in duplications of the alimentary tract. *Br J Surg* 1975, **62**: 269–274.
9. Anderson, M., Silberman, W. & Shields, T. Duplications of the alimentary tract in the adult. *Arch Surg* 1962, **85**: 110–124.
10. Grosfield, J.L., Boles, T. & Reiner, C. Duplication of pylorus in the newborn: a rare cause of gastric outlet obstruction. *J Ped Surg* 1970, **5**: 365–369.