Dealing with the hugely ectatic duodenum in high jejunal atresias

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High jejunal atresias may be associated with ectasia of the duodenum and dysmotility, which can delay inception of feedings and inanition. The procedures used for ectatic jejunum cannot be applied to the duodenum because of its complex anatomy. Dealing with the problem does not find mention in the major text books. Detailed here is a baby operated for jejunal atresia in which the ectatic duodenum led to prolonged, high postoperative aspirates, which precluded feeds. The successful operative management of the dilated duodenum is described below. *Ann Pediatr Surg* 10:92–94 © 2014 Annals of Pediatric Surgery.

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Introduction

Proximal jejunal atresias are often accompanied by ectasia of the proximal segment of the jejunum. The disordered motility of a long segment of the proximal small bowel can result postoperatively in high aspirates, inability to initiate feeding, inanition, and the problems of prolonged administration of total parenteral nutrition [1]. The usual methods used to avoid these are proximal jejunal tailoring [2], plication of the jejunum [3], or resection back to the ligament of Treitz. Extension of the ectasia into the duodenum increases the magnitude and complexity of disordered gut function. The anatomy of the distal duodenum does not easily lend itself to either tailoring or plication.

In this communication, we outline the exposure of the ectatic distal duodenum to make it more amenable to enteroplasty or resection, in the context of a baby with high jejunal atresia, massive duodenal ectasia, and dysmotility.

Case report

T.A. was a full-term baby referred to us for neonatal intestinal obstruction. Plain radiography of the abdomen on arrival showed (Fig. 1a) excessive dilatation of the proximal jejunum and the duodenum. After preparation, at laparotomy, a type-2 jejunal atresia was found within 10 cm from the duodenojejunal (DJ) flexure, with marked ectasia of this segment and the duodenum. The proximal jejunum was resected to the DJ flexure and anastomosed to the distal segment in an end-to-back manner. Total parenteral nutrition was initiated through a central line. Postoperatively, the nasogastric aspirates continued to be high for 3 weeks and feeds could not be initiated. A dye study showed the continuing ectasia of the duodenum (Fig. 1b). Another exploration of the abdomen was carried out to address this on the 21st postoperative day.

During operation, the previous anastomosis was found patent. The right colon was deperitonealized to mobilize it and the terminal ileum to the left. This mobilization was enough to be able to reflect the small and the right colon upward and to the left (Fig. 1c). This maneuver exposed the third part of the duodenum from behind the superior mesenteric vessels. The fourth part of the duodenum was then detached laterally from the posterior peritoneum and medially from the branches of the inferior pancreaticoduodenal vessels and straightened out from behind the superior mesenteric vessels. As the third and fourth parts of the duodenum were very ectatic and the patient had suffered prolonged starvation, it was decided to resect the fourth and a part of the third part of the duodenum along with the previous jejunal anastomosis. The remaining duodenum along with the second part was tailored to an adequate size and an anastomosis was carried out between this and the jejunum. The entire colon was then introduced into the left and the small bowel to the right side of the abdomen. An appendectomy was carried out and closure affected.

Postoperatively, the nasogastric aspirates, high to begin with, tailed off toward the 10th postoperative day. A gastrografin study conducted through the nasogastric tube at this time showed an immediate and good flow of dye into the distal jejunum (Fig. 1d). Feeding was instituted and could be rapidly advanced to normal volumes. At follow-up of 3 months later, the baby continues to thrive.

Discussion

The proximal bowel ectasia accompanying high (within 10 cm from the DJ flexure) jejunal atresia is well recorded [4,5] as are the problems accompanying it. The ectasia in cases of duodenal atresia seems to have been addressed adequately by Kimura's diamond anastomosis [6]. Conversely, dysmotility from duodenal enlargement, associated with the most proximal of jejunal atresias, continues to be a problem, as none of the techniques to reduce jejunal size can be extended to the duodenum because of its anatomy.

In the present case, the limits of jejunal resection had been reached in the first operation, and yet the duodenum failed to function, even weeks later. Clearly, the ectatic dysmotile duodenum needed address.

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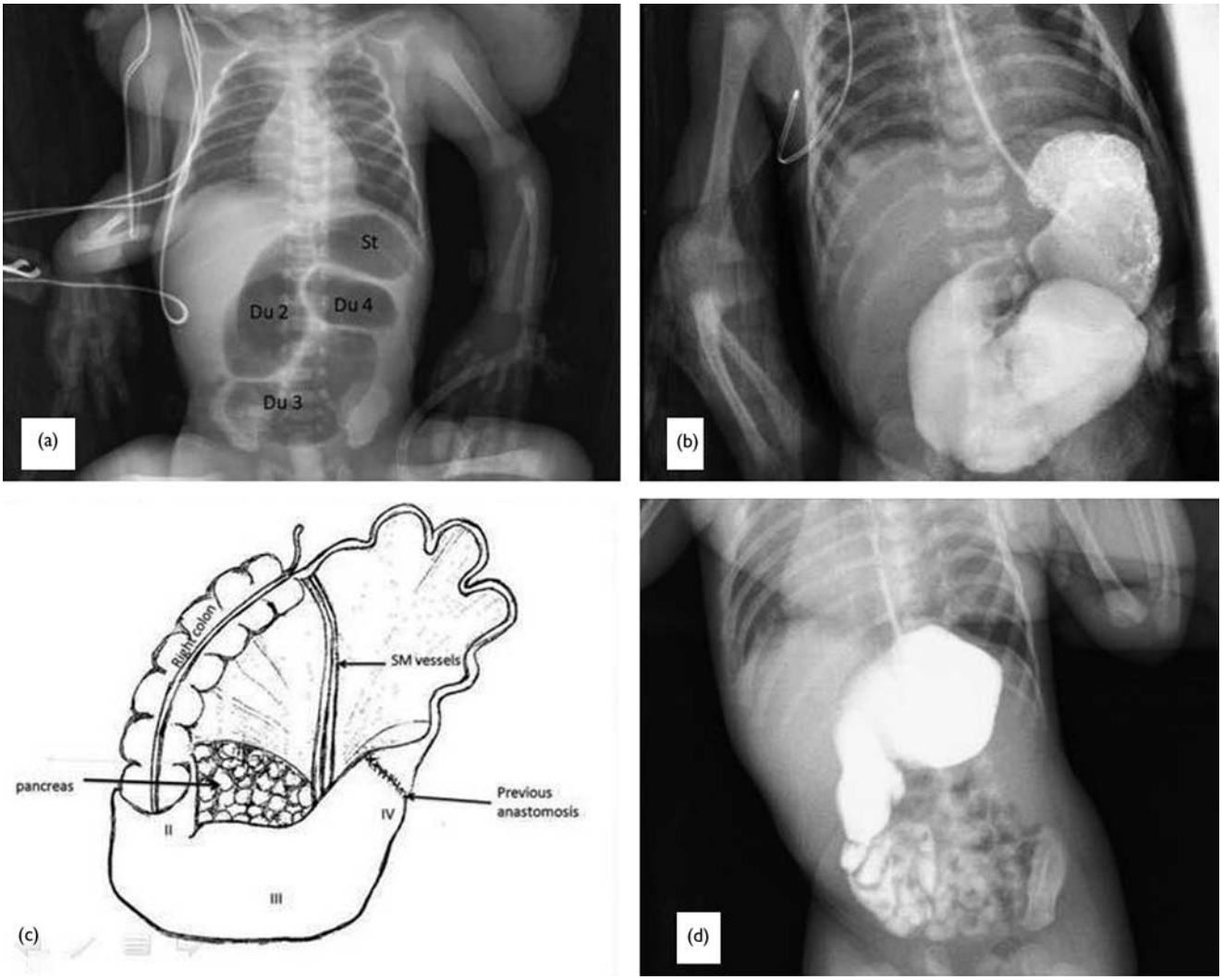
Fig. 1



(a) Extent of the duodenal ectasia after the first operation. Of note is the massive enlargement of the third and fourth part of the duodenum. (b) The duodenum after derotation and excision of the fourth and third part shows free passage of dye distally. (c) Diagrammatic representation of the technique of exposing the third and fourth part of the duodenum by deperitonealizing and lifting up the right colon and distal ileum above and to the left. The duodenum is now made amenable to resection or tailoring. (d) A week after the duodenal derotation, easy passage of dye into the jejunum. SM, superior mesenteric.

'Derotation', 'creation of malrotation', and 'lateral 'duodenectomy' [7–9] were all mentioned but not detailed in major texts [4,5]. They refer to the deperitonealizing of the ascending colon and its mobilization, along with the terminal ileum, to the right, such that the distal duodenum is exposed [10]. The dilated duodenum can now be straightened and resected or tapered as desired.

In this case, as the ectasia and dysmotility had continued weeks after the first operation, it was considered prudent to resect the nonfunctional segment and anastomose the jejunum to the second part of the duodenum.

Conclusion

High jejunal atresias may be associated with an ectatic, dysmotile distal duodenum, which may need to be tailored. This may be achieved to good effect by the technique cited here.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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