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INTESTINAL MALROTATION AND LADD'S BANDS IN A YOUNG CHILD
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SUMMARY

The case we present, is an interesting example of intestinal malrotation, which is a well known congenital condition, which tend to manifest early in life. In our case the age of our patient made the diagnosis potentially more challenging, as it was not the most typical age for duodenal stenosis due to Ladd's bands, which is often mostly observed earlier in life. Stenosis of the duodenum is relatively rare, and may represent a surgical challenge, especially in setting with limited diagnostic and treatment facilities. We also discuss implication of language barriers to potentially delay timely diagnosis and optimal management.

INTRODUCTION

A young child was admitted to Chaaria Mission Hospital, due to worsening symptoms of sub-occlusion, with recurrent vomiting and constipation for the past one week. At the past medical history, the young boy had been complaining intermittently of abdominal pain for the last two years, with increasing frequency and intensity over time.

REPORT

A four year-old child was admitted to Chaaria Mission Hospital. The young patient had clear signs of severe malnutrition and dehydration, with sub-occlusive symptoms: vomiting was ongoing in the last week and started shortly before admission. There was also constipation. The young boy had been complaining of abdominal pain for the last two years, with increasing frequency and intensity over time. Collection of information from the child's father, coming from the Borana tribe, was not easy and we were helped by other patients coming of the same ethnic group.
On examination, general conditions appeared quite poor: the child was dehydrated, and pale. On investigations, there was severe anaemia (Hb 5 g/dL) and important electrolyte imbalance (K+ 2.1, Na+ 116.1, Cl- 68.8 mmol/L).

The child received whole blood and also Hartman's solution to correct the hypokalemia, hypochloremia and hyponatremia. A nasogastric tube was inserted, oral feeding attempts were completely interrupted. As a result, the general conditions improved and vomiting stopped. However that could not be a long-term solution. As soon as the conditions improved, we aimed to investigate the patient's whole gastrointestinal tract and performed a barium meal and barium enema. The barium meal and follow through revealed the presence of duodenal stricture, which allowed the contrast media to pass with delay to the small intestine. The barium enema was possibly suggestive of irritable bowel syndrome, as indicated by redundant loops at descending and transverse colon levels.

With the above information, we decided to propose surgical approach, aiming at providing etiological treatment, rather than a symptomatic one, having identified a surgical reason for the important and sub-occlusive symptoms.

During surgery we discovered that the young patient had a complex congenital malformation: the whole intestine (both small intestine and colon) was malrotated, with the result that the cecum was present in the left inguinal fossa, while congenital bands on the second portion of the duodenum created a duodenal stenosis, which manifested symptomatically with occlusive symptoms. We therefore decided to perform the Ladd's procedure for correction: the bands were cut and the malrotated intestine was repositioned. The angle of Treitz was liberated and prophylactic appendicectomy was performed, as indicated in

cases of congenital bowel malrotation. Finally, we anchored the coecum and ascending colon to the right parietal peritoneum using individual stitches in monofilament, to prevent risk of recurrence of the malrotation.

The post-operative period was unremarkable, with normal haemoglobin and electrolytes on the day of discharge. The patient was again able to feed normally and had no more vomiting. The child has now been in regular follow up for over three months post-surgery, and keeps doing well with no recurrence of symptoms.

DISCUSSION

Lesions that cause congenital duodenal obstruction are classified either as intrinsic or extrinsic. The intrinsic causes include duodenal stenosis, atresia or web, whereas the extrinsic causes include malrotation with Ladd's bands, like in our young patient, or other extrinsic causes like annular pancreas, anterior portal vein and duodenal duplication. The most common sign of malrotation is bilious vomiting due to occlusion. Other symptoms in the newborn include antalgic flexure of legs to alleviate abdominal cramps, tachycardia, tachypnea and failure to pass meconium. In our case the symptoms of subocclusion with biliar vomit could suggest a possible presence of intestinal obstruction, but the findings at the barium meal and enema added further support to clinical suspicion of duodenal stenosis.

The surgical approach we performed (Ladd's procedure) is the treatment of choice for intestinal malrotation, and was first performed in 1932 by William Ladd. Although this surgery is quite effective in resolving bowel obstruction, complications like small bowel obstruction and short-bowel syndrome following the procedure are quite frequent and seen in 46% of patients. Over 50% of patients presenting with complications will require further surgery. However with a clinically significant 3 month post operative follow-up, our patient showed a very smooth post-surgical period with no complications, no recurrence and full clinical improvement.

In addition, as mentioned earlier, we also encountered a communication barrier, beside the usual challenges of limited technical facilities and staff expertise with a broad spectrum of different surgical indications, typical of rural hospitals. The language barrier was due to the fact that the father and child only understood and spoke Borana dialect. Luckily we were helped by other patients acting as ad hoc translators, but at some point we also needed to use signs language,that is, when trying to explain to the father the need of operation. Collecting medical history and discussing therapeutic plans was therefore quite challenging.

In conclusion, while describing an interesting case of intestinal malrotation in a child of four years and its clinical and surgically approach, we also document how language barriers can make sometimes a straight diagnosis more elusive and time consuming, with potential impact on the patient's outcome. We are grateful also for other patients' help to support proper communication which contributed to an accurate and timely diagnosis

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