

and 2004 at 4 stroke centers. In collecting the late ( $\geq 1$  year) follow-up data, postal questionnaires were used to assess whether patients had experienced rupture or retreatment of a coiled aneurysm or any stroke or had died.

### Results

Overall, 184 patients with 188 UIAs were included. The median follow-up period was 12 years (interquartile range 11–13 years, maximum 20 years). A total of 152 UIAs (81%) were followed for more than 10 years. The incidence of rupture was 2 in 2122 aneurysm-years (annual rupture rate 0.09%). Nine of the 188 patients with coiled UIAs (4.8%) underwent additional treatment. In 5 of these 9 cases, the first retreatment was performed more than 5 years after the initial treatment. Large aneurysms were significantly more likely to require retreatment. Nine strokes occurred over the 2122 aneurysm-years. Seventeen patients died in this cohort.

### Conclusion

This study demonstrates a low risk of rupture of coiled UIAs with long-term follow-up periods of up to 20 years. This suggests that coiling of UIAs could prevent rupture for a long period of time. However, large aneurysms might need to be followed for a longer time.

### Commentary

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The use of coil embolization (coiling) of aneurysms has now established itself firmly in the management of aneurysms in neurosurgical practice. But there is still discussion with regards to the long term outcome of coiling. Since the ISAT trial we can firmly say that coiling is here to stay. This is also an ongoing discussion amongst the neurosurgeons who are keen to surgically treat the aneurysms and the interventional neuroradiologists who wish to coil. Both parties fighting their corner vigorously. This is yet another study which reports the safety of coiling in unruptured aneurysms. In my opinion as a neurosurgeon I firmly believe there is a role to play by both modes of treatment. Not all aneurysms can be coiled but all aneurysms can be clipped. I would prefer in acute aneurysm rupture that coiling is considered if possible to avoid a craniotomy at a time when the brain is less forgiving. The patient should have the best option for them determined after discussion between the specialities to give the patient the best outcome possible. In this study the retrospective data demonstrates the low risk factors associated with coiling of unruptured aneurysms but of note the aneurysms were small in size.

When considering coiling in Sri Lanka unfortunately the cost has a huge impact as it is still significantly higher compared to clipping. Therefore it is essential that surgical trainees

continue with the training in clipping for the foreseeable future. This is a major problem in Western countries due to subspecialisation within specialities. The skill of clipping is being lost due to a combination of subspecialisation and coiling being freely available. This will be a problem in the future as there may not be the available surgical skills to clip the complex, large and uncoilable aneurysms as well as dealing with the problems arising from failure of coiling.

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### Correspondence

Re: "A case of Midgut malrotation presenting as sub-acute intestinal obstruction in an adult"

Original article: Mathangasinghe, Y. and Samaranayake, U.M.J.E., 2018. A case of midgut malrotation presenting as subacute intestinal obstruction in an adult. *Sri Lanka Journal of Surgery*, 36(1), pp.47–48.

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### To the editor:

I read with interest the article "A case of Midgut malrotation presenting as sub-acute intestinal obstruction in an adult" in the April issue of *The Sri Lanka Journal of Surgery*.

As a paediatric surgeon I would like to point out certain shortcomings in the article which are as follows.

- (1) The authors have mentioned that the 3rd part of the duodenum was atretic. In medical terms atresia means a congenital absence or a complete closure of a tubular structure. This is almost impossible in this patient as he was 68 years of age and had presented only with intermittent symptoms suggestive of partial intestinal obstruction and the upper GI contrast study also clearly shows the contrast in the distal small bowel. What generally happens in malrotation is an extrinsic compression of the 2nd part of the duodenum by the so called Ladd's bands leading to a partial obstruction.
- (2) The authors also mention that they did divide the bands which they called the Ladd's procedure which is again incorrect as the Ladd's procedure involves in addition,
  - (A) The straightening of the duodenum and
  - (B) The mobilization of the caecum to the left hypochondrium so that the base of the mesentery is widened which is the most important step thus minimizing the chance of a future twisting of the base of the mesentery.

The latter (The twist of the midgut) is the most dreaded complication of uncorrected malrotation with resultant midgut ischaemia/necrosis. According to the article this most

important part of the operation has not been carried out thus leaving the patient still with the potential risk of twisting of the midgut (midgut volvulus) and its sequelae. Had the complete Ladd's procedure been done, the gastrojejunostomy which was done in this patient would not have been required. Although the authors themselves have mentioned the fact that such a procedure as gastrojejunostomy done in this patient is required only rarely, no reference of any recorded instance of it being carried out for malrotation has been given. I feel that as a peer reviewed article these shortcomings should not have been overlooked before publication as this is the foremost journal of the surgical fraternity of Sri Lanka.

Yours sincerely,

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#### **Authors reply:**

We write back as a response to the letter to the editor. We appreciate the constructive criticism provided on the above article.

Duodenal atresia was defined in the Nelson textbook of paediatrics as: "Atresia occurs in several forms. One or more segments of bowel may be missing completely, there may be varying degree of obstruction caused by webs or stenosis, or there may be obliteration of the lumen in cord like bowel remnants"[1]. What we meant by an "atretic segment" was a partially obstructed segment of the duodenum.

Ladd's procedure was first described by William Ladd in 1936 [2]. The classical Ladd's procedure comprised of four steps: division of Ladd's bands which compresses the duodenum; widening of the of the root of the mesentery by mobilising the duodenum and division of the adhesions around the superior mesenteric artery to prevent further volvulus; counter-clockwise detorsioning of the midgut volvulus if present and appendicectomy to prevent future diagnostic dilemma of an abnormally located appendix [2]. A literature review on adult midgut malrotation stated the following verbatim: "The original Ladd's procedure was described for the paediatric population group and the full components of this procedure may not be offered in the adult group" [3]. It is also accepted that "untwisting of the duodenum from the posterior capsule of the pancreas can be difficult and is a technique not often used in adult surgery" [4]. A case report based on surgical correction of an adult midgut malrotation conducted in Queen Mary's hospital, London, UK and which was published in World Journal of Emergency Surgery stated following verbatim "We offered a modified procedure to our patient by performing a division of Ladd's bands and an appendicectomy. There was no volvulus and we did not feel that the

duodenum needed to be mobilised and straightened in this case. Our patient has been completely symptom free during 12 months of follow up" [3]. Thus, straightening of the duodenum can be conducted as an elective procedure depending on the intraoperative findings, not as a mandatory procedure. In our patient, division of Ladd's bands was performed along with the widening of the root of the mesentery. But the straightening of the duodenum was not done. The procedure carried out by us was a modification of the original Ladd's procedure.

In the present case, intravenous Omnipaque, oral and rectal contrast CT scan with sagittal and coronal reconstructions did not show extrinsic compression. It was concluded that there was intrinsic obstruction of the second part of the duodenum. Small intestine was not filled with contrast in the CT implying that this was a significant obstruction. The intraoperative findings showed Ladd's bands. Even after the division of Ladd's bands, the lumen seemed to be narrow. Milking of the contents of the proximal part of the duodenum to the distal part through the narrowing was difficult even after the division of Ladd's bands. This might be because of narrowing due to long standing external compression from the Ladd's bands. Due to this persistent narrowing, a diversion gastrojejunostomy was performed to prevent recurrence. A similar procedure of Ladd's band division, mesenteric base widening, and gastrojejunostomy without straightening of the duodenum as a treatment for adult malrotation and chronic obstruction has been previously reported and published in a peer reviewed journal [5].

#### **References**

1. Marcante, K. J., & Kliegman, R. (2015). Intestinal atresia, Nelson essentials of pediatrics (7th edition.), Philadelphia: Elsevier/Saunders, section 17, 438-439
2. Ladd WE: Surgical diseases of the alimentary tract in infants. N Engl J Med 1936, 215:705-708.
3. Emanuwa OF, Ayantunde AA, Davies TW. Midgut malrotation first presenting as acute bowel obstruction in adulthood: a case report and literature review. World Journal of Emergency Surgery. 2011 Dec;6(1):22.
4. Escobar MA, Ladd AP, Grosfeld JL, West KW, Rescorla FJ, Scherer III LR, Engum SA, Rouse TM, Billmire DF. Duodenal atresia and stenosis: long-term follow-up over 30 years. Journal of pediatric surgery. 2004 Jun 1;39(6):867-71.
5. Nivash.S. "Adult Midgut Malrotation-An Unusal Case Report." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.8 (2017): 01-04