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Migrative Wrap after Fundoplication – A Case Series

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Abstract

Laparoscopic Nissen's fundoplication is an operation that increasingly being used for severe GERD, across the world. Very rarely, the fundal wrap or the gastric esophago junction migrates intrathoracically. This can happen as an acute immediate post operative event or as a chronic migration. We report a case series of 4 patients, who underwent laparoscopic Nissen's fundoplication and then had migration of wrap. 3 had a chronic wrap migration and presented with dysphagia, 6 months, 9 months and 11 months after surgery. The 4th was an acute post operative wrap migration, which happened in the 2nd post operative day itself. All patients underwent a reduction of the wrap, and meshplasty of the hiatus. All the migrative wrap cases underwent successful laparoscopic surgery. The acute post operative wrap required laparotomy for reduction and a partial sleeve resection of gangrenous stomach. Post operative mortality was nil, and the post operative morbidity was nil too, apart from some dysphagia in the acute wrap patient because of mesh extrusion, 3 years after surgery. This series highlights a rare and ill recognized complication after an increasingly common procedure. Technical details are highlighted.

Keywords: Ultrasound, x-ray, GERD, Hiatus Hernia, Minimal Access Surgery, Laparoscopy, Fundopication, Wrap migration

Introduction

Laparoscopic Nissen's fundoplication is an operation that increasingly being used for severe GERD, across the world. Very rarely, the fundal wrap or the gastric esophago junction migrates intrathoracically. This can happen as an acute immediate post operative event or as a chronic migration. We report a case series of 4 patients, who underwent laparoscopic Nissen's fundoplication and then had migration of wrap. 3 had a chronic wrap migration and presented with dysphagia, 6 months, 9 months and 11 months after surgery. The 4th was an acute post operative wrap migration, which happened in the 2nd post operative day itself. All patients underwent a reduction of the wrap, and meshplasty of the hiatus. All the migrative wrap cases underwent successful laparoscopic surgery. The acute post operative wrap required laparotomy for reduction and a partial sleeve resection of gangrenous stomach. Post operative mortality was nil, and the post operative morbidity was nil too, apart from some dysphagia in the acute wrap patient because of mesh extrusion, 3 years after surgery. This series highlights a rare and ill recognized complication after an increasingly common procedure. Technical details are highlighted.

Materials and Methods

Between 1997 and 2016, of 687 who have undergone laparoscopic

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anti reflux surgery under our care, 4 patients presented with migrations of the Nissen's wrap. We analyzed the data of these patients. Case 1, this gentleman underwent a laparoscopic Nissen's fundoplication, and had very severe post operative pain for about 48hrs. At the end of this period, he had some respiratory distress, and plain x-ray chest showed a large shadow in the chest. Ultrasound showed a fluid filled cavity in the chest, possibly stomach, a ryles tube was put in and a plain x-ray taken, and this showed the presence of the ryles tube in the chest. An acute herniation of the Nissen's wrap was diagnosed, and an urgent diagnostic relaparoscopy was performed. This showed that the wrap and the proximal stomach completely herniated into the chest. The hiatus repair was opened out and the stomach was pulled back into the abdomen, as there was too much of difficulty, laparotomy was done, and the stomach reduced, the reduced part stomach was found to have gangrenous changes along the greater curvature. Therefore a limited sleeve resection of that part of greater curvature was performed. The esophagus was once more pulled right down into the abdomen, and the hiatus repair was closed and then reinforced with a mesh. Post operatively after a stormy few days, the patient settled down completely and at 3 years follow up he is quite asymptomatic, apart from occasional dysphagia. He remains free of reflux.

Case 2, 3 and 4

These 3 cases presented almost identically. They were all women between 35, 42 and 49 years old. They presented 6 months, 11 months, and 8 months after fundoplication. The main symptom at the time of presentation was one of dysphagia and feeling of something sticking in the throat. Endoscopy showed a partial constriction in the mid thoracic esophagus and deformed lower esophagus. In all 3 cases, the contrast enhanced CT scan of the chest showed a distinct migration of the funding wrap into the lower chest, the widened hiatus was also clearly visualized. With informed consent about the need for the laparotomy, they were taken up for laparoscopic surgery. The findings were identical in all the 3 cases. The hiatal repair had given way. The stomach had herniated for a varying length, of 5 to 8cm into the lower chest. By anterior release on the crural stich, and by releasing fully the posterior crural sutures, we were able to release the wrap and pull that part of the stomach intraabdominaly. We then sutured the crura with 2-0 polypropylene and used a prolene mesh (BARD) to reinforce the crura like a "V" (see figure) and sutured the two limbs of the "V" on the undersurface of the diaphragm. The wrap seemed intact which was reconfirmed by an intraoperative endoscopy. A stay stich was taken on either side of the esophagus, ensuring that there was no twisting or tightening the wrap. Posterior gastropexy was done in all these patients by suturing the right half of the wrap to the hills ligament, below the level of the apex of the mesh. Post operatively all 3 patients did very well, all were discharged on 3 rd post operative day.

Discussion

Wrap migration can occur after laparoscopic fundoplication at any point of time. In the acute situation it is usually described after severe continuous belching and vomiting, which is exactly what our patient had for a 48 hr period(1)(2). It is said that the extra pressure causes the hiatal sutures to give way, and drives the wrap upwards into the chest(3). Early recognition of this complication is vital. In our case, had we done the relaparoscopy a few hours earlier, we might have avoided the need for sleeve resection of a small gangrenous segment of the stomach (3). Also, the edema that sets in after few hours prevents the stomach from coming back into the chest, and renders laparoscopy difficult or impossible. It is possible that the entire procedure could have been done laparoscopically, and without gastric sleeve resection, if taken up early. As for as the chronic wrap migration, all patients were diagnosed with the contrast enhanced CT chest, which was taken on suspicion (4). This is an important and game changing investigation, in the post fundoplication patients who complain of dysphagia. Also, the chronic wrap is a slow process, and the thoracic cavity adjust to the presence of the herniated wrap. Therefore respiratory distress is not a presenting feature, unlike in an acute post operative migration. Although there are some factors like adhesions formed between the high herniated part of the fundus and the surrounding structure. In all 3 of our patients, we had no major problem in laparoscopically releasing the stomach, freeing the hiatal fibers, and then delivering wrap back into the abdominal cavity. Some work has described resuturing of the hiatus alone, but we preferred it will be better if the sutured crura were reinforced, and we used crural patch in these patients this is a mixture of polyester and collagen, the smooth collagen side faces the abdominal cavity and the polyester side sits on the diaphragm (5). We sutured it on either side of the esophagus, to the right and left crura respectively. The apex of the crural suturing and the crural patch mesh was just posterior to the posterior wall of the esophagus. 2 to 4cm below that we fixed the right edge of the stomach to the tough aortic fascial ligaments (Hills ligament) with 2-0 polypropylene sutures. This was done as a posterior gastropexy to discourage further movement of the stomach(5). The reason for adding one more suture of the fundus on either side is to prevent remigration of the wrap. Many studies have come out of that using synthetic mesh reduces the recurrence rate of wrap migration (5) (6). Biodegradable mesh can also be used for reinforcing the wrap to prevent migration (7). Available literature suggests no clear advantage of biodegradable mesh over synthetic mesh , but keeping in view cost efficiency synthetic mesh can be advocated(6). At follow up, the patients who had the chronic wrap migration as well as the acute wrap migration remain comfortable with mild dysphagia in the acute wrap migration patient only(8).

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Conclusion

Many studies have shown that minimal invasive anti reflex surgeries is the most effective treatment for GERD , especially in those patients who need lifelong therapy(9). Migration of the fundal wrap post fundoplication is one of the most important complication of this surgery(4)(1).Short esophagus , weak abdominal wall , increase in intra abdominal pressure increases the risk of fundo wrap migration (10). Adequate diagnostic approach with proper follow- up of patients with incident symptoms will reduce the rate of complications (11).

References

1. Jani K, Madhankumar M, Palanivelu C & Maheshkumar G. Laparoscopic redo fundoplication for intrathoracic migration of wrap. Journal of Minimal Access Surgery 3 (2007): 111.
2. Hunter JG, Smith CD, Branum GD, Waring JP, Trus TL, et al. Laparoscopic fundoplication failures: Patterns of failure and response to fundoplication revision. Annals of Surgery 230 (1999): 595–606.
3. Balakrishnan S, Singhal T, Grandy-Smith S, Shuaib S & El-Hasani S. Acute transhiatal migration and herniation of fundic wrap following laparoscopic Nissen fundoplication. Journal of Laparoendoscopic and Advanced Surgical Techniques 17 (2007): 209–212.
4. Hainaux B, Sattari A, Coppens E, Sadeghi N & Cadière G-B. Intrathoracic Migration of the Wrap After Laparoscopic Nissen Fundoplication. American Journal of Roentgenology 178 (2002): 859–862.
5. Celasin H, Genc V, Celik SU & Turkcapar AG. Laparoscopic revision surgery for gastroesophageal reflux disease. Medicine (United States) 96 (2017).
6. Castelijns PS, Ponten JH, van de Poll MG, Nienhuijs S, et al. A collective review of biological versus synthetic mesh- reinforced cruroplasty during laparoscopic Nissen fundoplication. Journal of Minimal Access Surgery 14 (2018): 87.
7. Ringley CD, Bochkarev V, Ahmed SI, Vitamvas ML & Oleynikov D. Laparoscopic hiatal hernia repair with human acellular dermal matrix patch: our initial experience. American Journal of Surgery 192 (2006): 767–772.
8. Furnée EJB, Draaisma WA, Broeders IAMJ & Gooszen HG. Surgical reintervention after failed antireflux surgery: A systematic review of the literature. Journal of Gastrointestinal Surgery 13 (2009): 1539–1549.
9. Horgan S, Pohl D, Bogetti D, Eubanks T & Pellegrini C. Failed antireflux surgery: What have we learned from reoperations? Archives of Surgery 134 (1999): 809–817.
10. Deswysen Y, Volonté F, Gutschow C, Romagnoli R, Strignano P, et al. Herniation of an abdominal antireflux fundoplication into the chest: what does it mean? (2013).
11. Sobrino-Cossío S, Soto-Pérez JC, Coss-Adame E, Mateos-Pérez G, Teramoto Matsubara O, et al. Post-fundoplication symptoms and complications: Diagnostic approach and treatment. Revista de Gastroenterología de México (English Edition) (2017).