Abstract

Pectus carinatum is a common thoracic deformity, and Abramson technique is the most popular operation for this deformity at present. Although this technique has many advantages, it also has many obvious disadvantages. In order to eliminate these disadvantages, we designed a new operation, i.e. Wenlin procedure. We performed this operation on a patient with severe pectus carinatum and obtained satisfactory results. Our experience shows that Wenlin procedure is an ideal surgical technique for pectus carinatum, but its long-term effect needs further confirmation.

Keywords: Pectus carinatum, wenlin procedure, operation

Introduction

Pectus carinatum is one of the most common thoracic deformities. Its main feature is the protrusion of the anterior chest wall [1, 2]. This kind of deformity may not be harmful to physiological function of the patient, but it can significantly affect the appearance of the chest wall. Many patients are dissatisfied with the appearance and are eager for surgical treatment. The operation of pectus carinatum has a long history. In the early years, the operations were completely open techniques [1, 2]. Until 2005, Abramson reported a special technique, which began the era of minimally invasive treatment of pectus carinatum [3]. However, the design of Abramson technique has obvious disadvantages, and it cannot be used in all pectus carinatum operations [3]. In order to eliminate these disadvantages, we designed a new procedure and used it in a severe pectus carinatum patient. Here we introduce the application of this procedure in my patient.

Case Report

The patient was a 20-year-old male who was admitted to our hospital for protrusion of the chest wall [Fig 1]. In the early childhood of the patient, there was no obvious abnormality in the appearance of the thorax. From the age of 13, the patient's anterior chest wall began to appear abnormal, and then gradually protruded forward, but he had no symptoms. Because the patient was not satisfied with the appearance of the chest wall, he hoped to get surgical treatment. We performed physical and imaging examinations for the patient and found that his chest wall was convex and symmetrical [Fig 1, 2]. He was diagnosed as pectus carinatum before operation. His operation was performed under general anesthesia, and he was in the supine position. A longitudinal incision was made on each side of the chest wall, which was located between the median and anterior axillary lines, and on the highest protrusive plane. The length of the incision was about 2cm. After the muscles in the incision were dissociated, the ribs of the lateral chest wall were exposed. Two horizontal lines were made along the highest protrusive plane, with an interval of 3cm [Fig 1]. The positions where the ribs cross the horizontal line were marked [Fig 1], and the steel wire traction lines were placed at these positions. Two tunnels were made from both incisions to the middle along the horizontal line, which were located between the muscular layers and the bony structures. Two arc-shaped steel bars were put into the tunnels respectively. The fixed steel wires with introduced by the steel wire traction lines to surround the ribs and the steel bars. After the central protrusion was pressed, the steel wires were tightened and fixed, and the protrusion was eliminated [Fig 3]. After placing drainage in the pleural cavities, the incisions were closed and the operation was completed. The operation was smooth without complications. The operation time was 45 minutes and the bleeding volume was 20ml. The postoperative recovery was satisfactory and the patient was discharged 5 days after operation. The appearance of chest wall was normal postoperatively [Fig 4, 5].
After 15 months of follow-up, there was no discomfort and no change in the appearance of chest wall.

1st hpe s/o- mild chronic gastritis
Then pt underwent full evaluation under our institute
Usg a+p- ill-defined lesion at pylorus measuring about 3.5x5.1 cm with raised vascularity and partially occluding lumen, no e/o any calcific foci, maintaining fat planes with surrounding structure distal to lesion rest of deodenum found to be dilated with normal vascularity and peristalsis.

Discussion
Upper gi track obstruction due to duodenal intussusception is being very rare entity due to fixed retro peritoneum position of deodenum. intussusception of the more distal small intestine is also rare when it occurs, the lead point is usually meckel’s diverticulum, tumor, surgically created stoma, bruner’s gland hamartomatous polyp [1, 2] condition presents due to full thickness invagination of proximal bowel into distal bowel as lead point, which presents as bowel obstruction with features of intermittent colicky type of abdominal pain with palpable abdominal lump, nausea, vomiting, anemia, malena [3].
Duodenal intussusception was first reported by sunderlin in 1830 and only 48 cases have been reported till 2005 then after deodeno Duodenal intussusception secondary to Duodenal polypoidal growth have not been reported [4]. Radiological findings such as “target sign” and “bowel within bowel” suggestive of intussusception of proximal bowel into distal bowel [5].
Surgical and endoscopic intervention should be performed in all patients to rule out malignant lesions that may acts as a lead point. Surgical management usually requires resection of the involved bowel segment. Reduction can be attempted in small bowel intussusception if segment bowel is viable and malignancy is not suspected [6, 7].

Fig 1: Appearance of chest wall before the operation. A, B, C and D are the intersections of the ribs on the lateral chest wall and the two parallel lines passing through the most convex plane of the anterior chest wall.

Fig 2: X-ray of the chest before the operation.
Fig 3: Schematic diagram of the operation.

Fig 4: Appearance of chest wall after the operation.

Fig 5: X-ray of the chest after the operation.

Conclusion
Though Duodenal intussusception being the rare condition it should be considered a Possibility for upper GI track obstruction which to be diagnosed on basis of advanced radiological diagnostic modalities like CT, MRI. Endoscopic and open surgical intervention should be the treatment modality to cure the patient. At highly efficient set up it can be assisted with laproscopy which helps to anticipate the possible diagnosis and further decision of intervention.

References