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Case Report

Retro-umbilical adhesiolysis: a novel approach for a misnomered lesion

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Abstract Omental adhesions to the anterior abdominal wall are a common complication of abdominal surgery. Specific adhesions to the back of the umbilicus represent a challenge for safe laparoscopic access. In this case report, we describe a simplified two-port laparoscopic access procedure for retro-umbilical adhesiolysis. We concluded that successful adhesiolysis of retro-umbilical adhesions using the sequential Darwish and Lee-Haung points is feasible, and this procedure is a safe, minimally invasive alternative to the primary laparoscopic approach.

Key words: Laparoscopy, Umbilicus, Adhesion

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INTRODUCTION

Intraperitoneal adhesions present a challenge for laparoscopic surgeons because of possible visceral injury and poor visualization. Adhesions to the undersurface of the umbilicus were reported as "infra-umbilical adhesions" in a previous study.[1] Acute or chronic postoperative pain or even intestinal obstruction are serious sequelae of these adhesions. Additionally, because primary umbilical access is not possible, choosing the laparoscopic entry site is difficult. Here, we describe a minimally invasive, innovative, and safe laparoscopic approach for a confirmed case of thick omental adhesions on the undersurface of the umbilicus (retro-umbilical adhesions).

CASE REPORT

A 34-year-old parous woman arrived at the outpatient department (OPD) with recurrent severe central abdominal pain that was unresponsive to nonsteroidal anti-inflammatory drugs (NSAIDs) or antispasmodics for several months. She had a history of recurrent admissions to the emergency department (ER) after surgical repair of a para-umbilical hernia 1 year ago. Moreover, she was confirmed to have undergone a Caesarean section 4 years prior and subsequently experienced occasional left lower abdominal pain. An abdominal examination revealed two periumbilical incisions. Accordingly, the surgeon made a simultaneous supraumbilical incision to excise the para-umbilical hernia and an infra-umbilical incision to remove the infra-umbilical mass. Based on the histopathological assessment, the patient was

diagnosed with a small lipoma without evidence of endometriosis. Abdominal palpation revealed no masses in the anterior abdominal wall.

A transabdominal ultrasonography revealed a poorly defined anterior abdominal wall retro-umbilical hypoechogenic mass (Fig. 1A) measuring approximately 4×4 cm, with limited visceral sliding movement from behind the anterior abdominal wall during respiration. A magnetic resonance imaging (MRI) revealed a fixed, immobile mass with hazy edges behind the umbilicus (Fig. 1B). Cine-MRI confirmed the diagnosis of restricted visceral movement during respiration. The patient was counseled and provided consent for a laparoscopic intervention. After obtaining approval from the insurance company and Institutional Review Board (IRB) of Woman's Health University Hospital (IRB No. 22953), the patient was scheduled for laparoscopy. Abdominal examination under general anesthesia revealed no anterior abdominal wall masses. To reduce the risk of entry complications, pneumoperitoneum was achieved by the insufflation of CO_2 gas through a Veress needle. It was inserted at the Darwish point,[2] which is the point of intersection of a vertical line 2.5 cm medial to the right anterior superior iliac spine (ASIS) with a transverse line on the right side of the umbilicus (Fig. 2A). After this, we inserted a 5 mm trocar and a 5 mm telescope. No visceral or omental damage was observed during the initial abdominal examination. Extensive omental adhesions at the back of the umbilicus and pelvic colon adhesions to the lateral abdominal wall were observed.

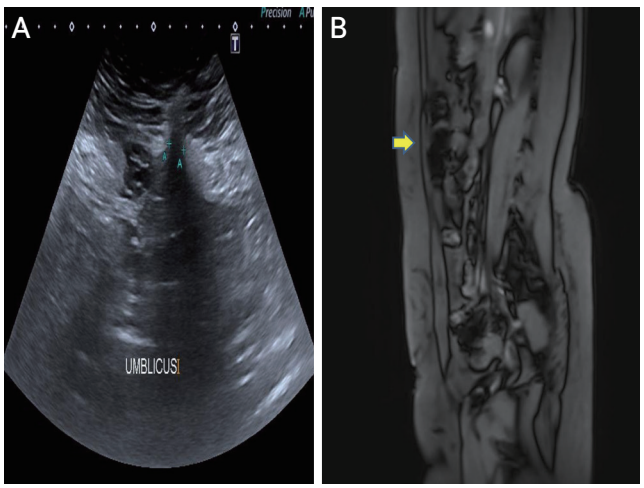

Figure 1. (A) Transabdominal ultrasonography of the retro-umbilical area. (B) MRI showing visceral adhesions behind the umbilicus (arrow). MRI: magnetic resonance imaging.

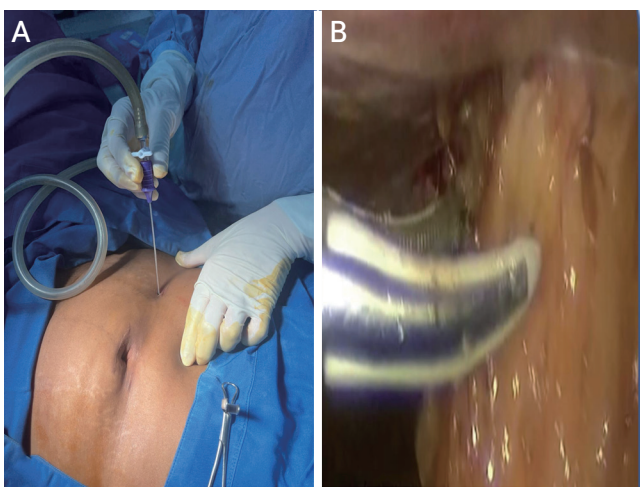

Figure 2. (A) The Darwish point. (B) Ligasure adhesiolysis of retro-umbilical adhesions.

An additional portal was inserted at the Lee-Haung point (a point in the middle upper abdomen between the xiphoid process and the umbilicus) to enable adhesiolysis using a LigaSure™ (Medtronic, Dublin, Ireland) that permits coagulation, vessel sealing, and tissue cutting (Fig. 2B). There were no entry complications. After adhesiolysis, the integrity of the hernia repair was checked, followed by ball monopolar coagulation of the umbilical adhesion bed. Subcuticular Monocryl 3/0 (Ethicon Inc., Raritan, NJ, USA) sutures were used to close the two 5 mm holes after repeated irrigation and suction. A few hours after the surgery, the patient was discharged from the hospital following a smooth postoperative course. There was no pain during follow-up, and the patient was satisfied with the therapy.

DISCUSSION

Adhesions to the under-surface of the umbilicus were reported as "infra-umbilical adhesions" in as early as 2000,[1] and this term seems to describe adhesions below but not behind the umbilicus. In this case report, we renamed it retro-umbilical adhesions, which is the correct anatomic term

describing adhesions to the undersurface of the back of the umbilicus based on basic anatomic planes. Retro-umbilical adhesions may occur in women with a history of umbilical surgery, such as repair of a paraumbilical hernia with or without a mesh, gastrointestinal surgery, or previous laparoscopy using the umbilicus as a primary portal. Due to its potential risks and inefficiency, umbilical access is not practical in cases of retro-umbilical adhesions; therefore, a non-umbilical primary approach should be used. The idea of alternative non-umbilical laparoscopic entry sites (Fig. 3) is not new. The ninth intercostal space (a point at the ninth intercostal space on the left anterior axillary line), palmar point (a point in the left upper quadrant, 3 cm below the costal margin and on the midclavicular line), or Jain point (located in the left paraumbilical region at the level of the umbilicus in a straight line drawn vertically upward from a point 2.5 cm medial to the ASIS) are left abdominal entry sites that are associated with risks of pulmonary, pleural, splenic, or gastric injuries. Therefore, thorough clinical and sonographic exclusion of enlarged organs or pathological diseases is mandatory prior to the insertion of the Veress needle. Moreover, nasogastric or orogastric intubation is mandatory to minimize the risk of gastric injury. Likewise, right-sided entry sites, such as the Latif point (a point between the xiphoid process and right costal margin), may be associated with the risk of hepatic or gastrointestinal tract injuries. Upper middle entry sites such as the Lee-Haung point (a point in the middle upper abdomen between the xiphoid process and the umbilicus) may be associated with a risk of omental or colonic injury. Lower middle entry sites include the trans-fundal and transvaginal approaches, which are rarely used because of their invasiveness and association with unintentional visceral injuries. In this case report, a novel entry point (Darwish point) was used, which is believed to be the safest non-umbilical laparoscopic entry point because it is far away from any important organ.

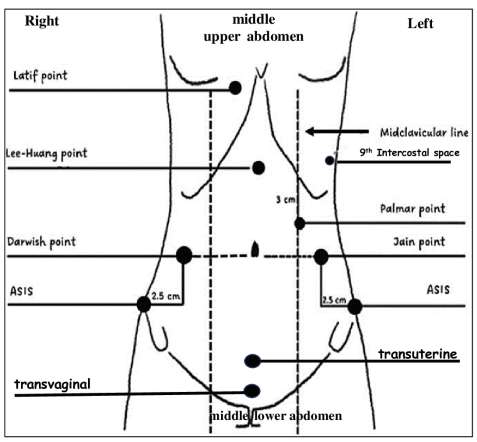

Figure 3. Alternative non-umbilical laparoscopic entry sites. ASIS: anterior superior iliac spine.

The Darwish point is a right-sided entry site that has been proven to be a safe alternative non-umbilical site. It is effective for the excision of umbilical endometriosis with preservation of intact umbilicus.[3] Moreover, it has been used in combined upper and lower abdominal surgeries to minimize the number of portal sites.[4] In this case of dense omental umbilical adhesions following the surgical repair of a paraumbilical hernia, the Darwish point was successfully used as an entry portal without prior nasogastric or orogastric intubation, and it was away from vital organs such as the liver or spleen. In this case, the under-vision insertion of the auxiliary trocar was performed at the Lee-Haung point, midway between the xiphoid process and the umbilicus. This site is ergonomically suitable for adhesiolysis because there is sufficient distance between the adhesions underneath the umbilicus and the instrument. Using LigaSure™ for simultaneous coagulation, vessel sealing, and cutting through a single portal is advantageous in this case because it functions as a two-in-one tool. Reducing the number of laparoscopic entries minimizes postoperative pain, enhances quick recovery, and improves aesthetics. Moreover, a simplified, safe "two-port" entry for removing retro-umbilical adhesions using the Darwish point and the Lee-Haung point was introduced in this case.

Successful adhesiolysis of retro-umbilical adhesions sequentially using the Darwish and Lee-Haung points is a safe and innovative alternative to the primary laparoscopic approach.

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