The Intra-Umbilical Approach in Umbilical Hernia

Umbilikal Hernide Göbek İçi Yaklaşım

Sukru Arslan¹, Ercan Korkut²
¹Department of General Surgery, Askale State Hospital, Erzurum, Turkey
²Department of General Surgery, Faculty of Medicine, Ataturk University, Erzurum, Turkey

Abstract

Objective: To investigate the "intra-umbilical incision", a smaller incision compared to classic incisions, in cases of umbilical hernia, and which we believe will contribute to patient satisfaction in aesthetic terms, and also the practicability of such operations.

Materials and Methods: The umbilical margins of eight patients with an umbilical hernia were marked between the levels of 6 and 12 o'clock, and a median intra-umbilical skin incision was performed between these two points. In some cases, where exploration could not be performed sufficiently, the incision was extended horizontally from 6 or 12 o'clock. Hernia repair and mesh placement was then performed using an intra-umbilical approach.

Results: Patients were investigated according to the defect size and requirement for intra-umbilical incision extension. No requirement for intra-umbilical incision was encountered in six patients with a fascial defect diameter smaller than 4 cm, while the incision had to be extended in two patients with defects greater than 4 cm.

Conclusion: The intra-umbilical approach in umbilical hernia surgery is aesthetically superior to classical approaches and is a practicable technique.

Key Words: Umbilical hernia, intra-umbilical approach, aesthetic

Introduction

The umbilical linea alba is formed by the umbilical aperture and is a region where herniation is frequently encountered. Umbilical hernia in infants is congenital, frequent and generally closes spontaneously at around the age of 2. Although it is often said that surgical repair is required if it has still not yet closed by the age of 5 [1], the true indications for surgical intervention are strangulation and incarceration [2].

In adults, umbilical hernia is to a large extent a condition that develops subsequently. It is more commonly seen in women and pregnancy, and in conditions that increase intra-abdominal pressure, such as acid or abdominal distension [3]. Umbilical hernias in adults with wide hernias and their symptoms, incarceration and thinning of the skin over the hernia or uncontrollable acid, should be repaired [4].

Umbilical hernia repair is performed using techniques such as primary repair (with simple facial suture, bikini repair etc.), primary repair + mesh (mesh placement over the fascia, beneath and intraperitoneal) [5, 6].

In umbilical surgery (excluding laparoscopic techniques) an elliptic incision is made around the umbilicus between the levels of 3 and 9 o'clock. If insufficient exploration is possible, the incision may be extended laterally and vertically from 3 and 9 o'clock. Another alternative is to make an elliptical incision between the levels of 6 and 12 o'clock. If sufficient exploration is not possible, the incision should be extended horizontally from these points.

The aim of this study was to show that today, when many operations in modern surgery are performed using minimally invasive techniques, umbilical hernia surgery can also be performed using an incision very much smaller than classic

Correspondence to: Sukru Arslan, Department of General Surgery, Askale State Hospital, Erzurum, Turkey
Phone: +90 505 855 34 21 e-mail: drsukruarslan@gmail.com
©Copyright 2014 by the Atatürk University School of Medicine - Available online at www.eajm.org
doi:10.5152/eajm.2014.06
incisions, invisible or else very little apparent from the outside, which can also increase satisfaction by reducing the patient’s aesthetic concerns.

Materials and Methods

This study was performed at the Erzurum Askale District State Hospital in Turkey between December, 2012, and April, 2013. Ten patients with umbilical hernia were assessed. Patients were assessed in terms of gender, age, defect size, accompanying disease, hernia sac contents, hernia repair techniques and accompanying operations. Cases of recurrent umbilical hernia were excluded.

Eight patients in the study underwent umbilical hernia surgery. All patients included were given detailed information about the study and gave signed consent. All patients were shaved the evening before surgery. Prophylactic intravenous antibiotic (2nd generation cephalosporin) was administered 30 minutes before surgery. The operation site was cleaned by swabbing with polyvinyl iodine at least twice.

In all patients, the surgical procedure, the umbilical margin was marked between the levels of 6 and 12 o’clock in order to establish the line of the incision. The umbilicus was accessed with the aid of clamps, and a median skin incision was made between these two marked points. In some cases in which sufficient exploration could not be achieved, the incision was extended horizontally from 6 or 12 o’clock. Primary repair and polipropilen mesh placement were performed in cases with umbilical defects smaller than 4 cm. In the case of defects of 4 cm or more, the defect was peritonised and a polipropilen mesh placed on top. The requisite operations were performed on those patients with accompanying diseases during the same session.

Results

Ten patients with umbilical hernia were examined. Two subjects with recurrent umbilical hernia were excluded, and eight patients were finally enrolled. Umbilical hernia surgery was performed on these using “intra-umbilical incisions.” Patients were investigated in terms of age, gender, size of defect, accompanying disease, operations performed during the same session and need for intra-umbilical incision extension (Table 1).

Five (62.5%) of the patients in the study were women and 3 (37.5%) were men. Ages ranged from 18 to 63, with a mean age of 40.25.

Cholelithiasis was present in two patients. Following intra-umbilical incision the contents of the hernia were returned to the abdomen in these patients. Single incision laparoscopic surgery (SILS) cholecystectomy was performed in one of these patients in the same session (Figure 1), while

Table 1. Correlation between patients’ defect size, operation performed and incision extension requirements

<table>
<thead>
<tr>
<th>Age</th>
<th>Defect Size</th>
<th>Accompanying Disease</th>
<th>Hernia Repair Techniques</th>
<th>Accompanying Operations</th>
<th>Incision Extension Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>18/M</td>
<td>0-2 cm</td>
<td>Primary repair+ mesh placement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>35/F</td>
<td>2-4 cm</td>
<td>Primary repair+ mesh placement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>28/M</td>
<td>2-4 cm</td>
<td>Primary repair+ mesh placement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>51/F</td>
<td>2-4 cm</td>
<td>Primary repair+ mesh placement</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>63/M</td>
<td>Cholelithiasis</td>
<td>Primary repair+ mesh placement</td>
<td>Open cholecystectomy</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>47/F</td>
<td>Cholelithiasis</td>
<td>Primary repair+ mesh placement</td>
<td>SILS Cholecystectomy</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>48/F</td>
<td>&gt;4 cm</td>
<td>Primary repair+ mesh placement</td>
<td>Diagnostic Laparoscopy</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>32/F</td>
<td>&gt;4 cm</td>
<td>Peritonization+ mesh placement</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

SILS: Single incision laparoscopic surgery
due to the presence of bile duct adhesions in the other, open cholecystectomy was performed with subcostal incision. Umbilical hernia surgery was performed with intra-umbilical incision in both cases.

Facial defect diameters in two patients were 5 and 6 cm. In the first, while primary repair+mesh placement was being performed the incision had to be extended 1 cm downward. In the second patient, the facial aperture was closed with peritonization and mesh installed. A polipropilen mesh approximately 13x13 cm in size was used in this case, and the incision had to be extended downward by 2 cm. Following determination of the umbilical floor in both cases, since the extended incision line also entered into the umbilicus the remaining incision outside the umbilicus appeared to be shorter (Figure 2).

No intra-umbilical incision extension was required in the other six patients with facial defects smaller than 4 cm (Figures 1, 3).

Discussion

Eighty-eight per cent of all hernias are inguinal, 6% are femoral, 5% incisional, 4% umbilical and 1% epigastric [7, 8].

In classic umbilical hernia operations, ellipsoid incisions extending in a half-moon around the umbilicus are used. Primary repair, the bikini technique and mesh placement are generally used as surgical techniques.

Factors such as the technique employed in closure of defects in umbilical hernia operations, the suture material used, wound complications, the experience of the surgeon performing the operation and accompanying disease all affect recurrence [4, 9].

In our study, we used an intra-umbilical incision to access the hernia sac in the repair of umbilical hernia. The method we used has no effect on surgical technique and all eight cases were completed through this incision. The surgical technique was not altered because of the incision selected in any patient. The same technique would have been used if classic incision had been made, no matter what the technique.
The disadvantage of the intra-umbilical incision used in preference to the classic incision is that length of surgery is greater, since exploration is more difficult. However, we believe that as the number of cases and experience increase, this can be overcome. In addition, we believe that since the intra-umbilical incision is shorter than the classic incision, this will have a positive impact on wound healing. Even in cases where incision extension is required due to difficulty in exploration, with the identification of the umbilical floor in the cavity resulting from extraction of the hernia sac, part of this extended incision enters into the umbilicus, and for this reason that part of the incision remaining on the outside appears shorter.

In conclusion, our study shows that the "intra-umbilical approach" is a technique that can be used in umbilical hernia operations today, when minimally invasive surgery is becoming increasingly important, since it does not involve any change in surgical technique and, since the incision is smaller, it can contribute to patient satisfaction in subjects with aesthetic concerns. However, further studies are needed in terms of revealing complications attendant on the technique.

Conflict of Interest: No conflict of interest was declared by the authors.

Peer-review: Externally peer-reviewed.

Informed Consent: Written informed consent was obtained from patients who participated in this study.


Financial Disclosure: The authors declared that this study has received no financial support.

References