

# Umbilical Hernia Repair

## Overview of Approaches and Review of Literature

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### KEYWORDS

• Umbilical • Hernia • Repair • Mesh • Primary • Laparoscopic • Robotic • Open

### KEY POINTS

- Although umbilical hernias are often thought of as simple to repair, long-term recurrences and chronic complaints occur.
- Multiple treatment options exist for umbilical hernias, ranging from watchful waiting to surgical repair.
- Open, laparoscopic, and robotic repairs of umbilical hernias have been described and should be tailored based on clinical characteristics.
- In general, mesh use has been shown to decrease recurrence rates in umbilical hernia repair; however, mesh can result in an increase in surgical site infections/occurrences.

### INTRODUCTION

Umbilical hernias are some of the most common hernias encountered by surgeons; approximately 175,000 umbilical hernias are surgically repaired annually in the United States.<sup>1</sup> Although umbilical hernias are often thought of as simple hernias, they can be complex and, if not handled properly, can be irritating to patients and surgeons. A true umbilical hernia is classified as a primary hernia; however, because the umbilicus is often used for laparoscopic access, incisional hernias can occur at the umbilicus, and surgeons should be aware of the distinctions between the 2. Several things make umbilical hernias challenging, including the heterogeneity of presentation, multiple options for repair, and potential for complications, including infection and

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recurrence (Figs. 1 and 2). Debate continues regarding the indications for mesh use for umbilical hernias, optimal techniques for repair, and the role of robotic technology for repair.

### OPEN TECHNIQUES AND USE OF MESH

A major decision facing surgeons when planning an open umbilical hernia repair relates to mesh use. The use of mesh and precise indications for mesh and nonmesh repair are debated with no clear consensus. Four prospective randomized trials have evaluated the use of mesh for umbilical hernias; 3 of 4 reported lower recurrence rates with mesh use,<sup>2-5</sup> with the greatest benefit in patients with cirrhosis<sup>4</sup> and patients undergoing emergent repair of incarcerated hernias.<sup>3</sup> A population-based study from the Danish Ventral Hernia Database reported similar findings.<sup>6</sup> Reoperation rates for recurrence were less in patients undergoing mesh repair compared with nonmesh repair in 4786 patients undergoing elective open repair of small ( $\leq 2$  cm) umbilical or epigastric hernias.<sup>6</sup>

#### *Primary Repair*

Despite the fairly conclusive evidence supporting the use of mesh to decrease recurrence rates in open umbilical hernia repair, approximately 50% of elective umbilical hernias in the United States are repaired using a primary (suture) repair, indicating a reluctance among surgeons to use mesh in all cases.<sup>7</sup> The Mayo repair, first described in 1901, was a primary suture repair of umbilical hernias described as a “vest over pants” fascial closure in a transverse orientation using 2 rows of horizontal mattress sutures.<sup>8</sup> Although this technique was popular for many years and is occasionally used today, high long-term recurrence rates have limited its use with most surgeons who use a simple, interrupted or figure-of-8 primary closure in a horizontal fashion (Fig. 3).

Techniques of open primary repair vary. In general, however, patients should be prepared similarly to other abdominal operations with general anesthesia and perioperative antibiotics. Most umbilical hernias can be approached through a 3 cm to 4 cm curvilinear infraumbilical incision in the infraumbilical fold. Blunt dissection is begun on either side of the umbilicus to encircle the umbilical stalk and hernia



**Fig. 1.** Large complex primary umbilical hernia. Although umbilical hernias are usually small, they can grow to large sizes and can be difficult to fix.

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