

## EDITORIAL ΑΡΘΡΟ ΣΥΝΤΑΞΗΣ

### Management of Meckel's diverticulum in adults

Meckel's diverticulum (MD) is the most common congenital malformation of the gastrointestinal tract, comprising 97% of omphalomesenteric duct malformations. Bleeding from a MD containing ectopic gastric mucosa is the most common clinical presentation in younger patients, but it is rare in adults, in whom the most common complications include intestinal obstruction and diverticulitis.<sup>1</sup> Due to the rarity of its presentation in adults, the presence of a symptomatic MD is usually misdiagnosed preoperatively. The treatment of a symptomatic MD is definitive surgery, including diverticulectomy, wedge and segmental resection, but routine resection of an incidentally discovered MD is not indicated.<sup>2</sup> The present article addresses the following questions: (a) What type of operation should be performed for a symptomatic MD, and (b) whether to resect an asymptomatic MD.

#### QUESTION 1: DIVERTICULECTOMY OR WEDGE AND SEGMENTAL RESECTION FOR A SYMPTOMATIC MD?

The type of procedure to be performed for resection of a symptomatic MD depends on: (a) The integrity of diverticulum base and adjacent ileum, and (b) the presence and location of ectopic tissue. The presence of ectopic tissue cannot be accurately predicted intraoperatively by palpation and macroscopic appearance; when present, however, its location can be predicted based on the height-to-diameter ratio. Long diverticula (height-to-diameter ratio >2) have ectopic tissue located in the body and at the tip, whereas short diverticula (height-to-diameter ratio <2) have a wide distribution of ectopic tissue, including the base.<sup>3,4</sup> Consequently, categorization of MD into long and short, based on the height-to-diameter ratio, can aid in decision making.

Based on the above, when the indication for surgery is simple diverticulitis of a long MD, diverticulectomy can

be performed. When the indication for surgery is simple diverticulitis of a short MD, wedge resection should be performed. When the indication for surgery is complicated intestinal obstruction, complicated diverticulitis with an inflamed or perforated base, or tumor, wedge or segmental resection should be performed. When the indication for surgery is bleeding, wedge resection or segmental resection are the preferred methods of resection, although diverticulectomy can be performed for long diverticula.<sup>3,4</sup>

#### QUESTION 2: TO RESECT OR NOT AN INCIDENTALLY DISCOVERED MD?

Management of an incidentally discovered MD remains controversial. In 2008, Zani and colleagues, based on a systematic review of 244 studies, showed that resection of an incidentally discovered MD had a significantly higher complication rate than leaving it *in situ*. The authors concluded that leaving an incidentally discovered MD *in situ* reduces the risk of postoperative complications without increasing late complications.<sup>5</sup> On the other hand, Zulfikaroglou and colleagues, in a retrospective study of 76 patients with MD reported that there was no significant difference between symptomatic and asymptomatic patients with respect to postoperative complications. These authors concluded that resection of an incidentally discovered MD is not associated with increased operative morbidity and mortality.<sup>6</sup>

As the management of an incidentally discovered MD remains unclear, it is reasonable for the decision making to be based on the presence of risk factors for developing future complications. In 2006 Robijn and colleagues, following a systematic review, suggested that decision making concerning resection should be based on the presence of the following risk factors: male sex, patients younger than 45 years, diverticula longer than 2 cm and the presence of a fibrous band.<sup>7</sup> Park and colleagues, in a retrospective study of 1,476 patients with MD, showed that: (a) Patient age younger than 50 years, (b) male sex, (c) diverticulum length greater than 2 cm, and (d) ectopic or abnormal features within a diverticulum, were all risk factors associated with the development of future complications. The authors recommended removal of all incidental MD

that fulfill any of these four criteria, as when one criterion was met, the overall proportion of symptomatic MD was 17%, and when two, three, and four criteria were met, the proportion increased to 25%, 42%, and 70%, respectively.<sup>8</sup> When resection is to be performed for an incidentally discovered MD, diverticulectomy can be performed for long diverticula, but wedge or segmental resection should be performed for short diverticula.<sup>3,4</sup>

In conclusion, the treatment of a symptomatic MD is resection, including diverticulectomy, wedge and segmental resection. The type of procedure to be performed depends on (a) the integrity of the diverticulum base and adjacent ileum, and (b) the presence and location of ectopic tissue within MD. The presence of ectopic tissue cannot be accurately predicted intraoperatively by palpation and

macroscopic appearance; however, its location can be predicted based on the height-to-diameter ratio of the diverticulum as described above.<sup>3,4</sup> Regarding management of an incidentally discovered MD, routine resection is not indicated, but the decision should be based on the documented risk factors for developing future complications, as listed above.<sup>7,8</sup> Intraoperative categorization of MD into long and short is crucial for decision making in the case of both symptomatic and incidentally discovered MD. The basic principles of MD management are summarized in table 1.

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**Table 1.** Basic principles of the management of Meckel's diverticulum.<sup>3,4,7,8</sup>

Indication	Long diverticula	Short diverticula
Simple diverticulitis	Diverticulectomy	Wedge or segmental resection
Complicated diverticulitis with inflamed or perforated base	Wedge or segmental resection	
Complicated intestinal obstruction	Wedge or segmental resection	
Bleeding	Diverticulectomy	Wedge resection or segmental resection
Incidentally discovered Meckel's diverticulum	Diverticulectomy	Wedge resection or segmental resection

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