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Meckel's Diverticulum: Prevalence in 1000 Laparatomies

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ABSTRACT

Objectives: To detect the prevalence of Meckel's Diverticulum in children and adults aged 1 day to 90 years old.
Materials and Methods: This is a cross sectional descriptive study of 1000 cases aged 1 day to 90 years old in the surgery wards of two educational hospitals, Mashhad, Iran from 1998 to 2004. The prevalence of Meckel's diverticulum, age, sex, and chief complain of patient and the site and size of the diverticulum were evaluated.
Results: Meckel's diverticulum was seen in 5.4% of patients. 62% of patients were younger than 2 years and 80% were male. Gastrointestinal and obstructive symptoms were the most common presenting feature of the condition (38%). Meckel's diverticulum was observed at 40-59 cm distance from the ileosecal valve with 1-1.49cm length and 0.5-0.99 cm width.
Conclusion: Meckel's diverticulum was more common in children younger than 2 years and was presented by GI obstructive signs in most patients.

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Introduction

Meckel's diverticulum (MD) is found in 1-3% of the population and is the most common type of gastrointestinal congenital anomaly (1). Just 4-6.4% of patients became symptomatic and in some cases complications may develop (1, 2).

In the study by Marinaccio, MD was detected in 10 children during laparotomy performed from 1989 to 1994. 3 out of 10 patients were asymptomatic whereas the rest had a clinical presentation of intestinal obstruction, rectorrhagia or diverticulitis (3).

In another study (4), conducted in a 20-year period, MD was diagnosed in 164 children during laparotomy. 117 out of the 164 patients had clinical features including intestinal obstruction, rectorrhagia, diverticulitis and umbilical pathology. The remaining patients (47) did not have any symptoms and MD was found incidentally.

In another study performed by Ur Rehman in Peshawar (5) on 63 patients, it was revealed that 82.5% of the patients had obstructive signs whereas only 4.7% were admitted with rectal bleeding. In other studies, however, (6, 7) it has been reported that rectal bleeding is the most common presenting symptom in MD.

Therefore, in regards to different findings from previous studies, this study was conducted to evaluate the prevalence of symptomatic and asymptomatic cases of MD in our patients.

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Materials and Methods

This cross-sectional descriptive study was performed on 1000 patients aged 1 day to 90 years who had undergone laparotomy from 1998 to 2004 at the surgical wards of Dr. Sheikh and Ghaem hospitals of Mashhad, Iran. Data including age, sex, clinical presentations at admission, associated disease found at laparotomy and also the size and site of MD were recorded. This study was approved by the Ethics Committee of Mashhad University of Medical Sciences. Data were analyzed by the SPSS-13 software and P-value <0.05 was considered as statistically significant.

Results

624 out of 1000 cases were male (62.4%) and the rest e female (37.6%). MD prevalence was 5.4% and 5.02% of the patients were asymptomatic. Mean age of patients was 3.19 years (SD= 6.02 years). Different age groups are shown in table 1. 62% (31) of the 50 patients with MD were younger than 2 years of age, and 22% were 2 to 4 years old. 40 out of these 50 patients (80%) were male and 10 (20%) female (*P*= 0.019). The most common clinical features of the MD patients were bowel obstruction seen in 38% and umbilical pathology found in 20%. Intestinal hemorrhage was present in 8% of patients. There was no significant difference between the two sexes with respect to the presenting clinical features (*P*= 0.13). Other symptoms are displayed in table 2.

The most common associated disease was intestinal atresia and obstruction (30%). Inguinal hernia was the second common co-morbidity (18%). In 32 out of 50 patients (64%), MD was at 40-59 cm distance from the ileosecal valve whereas in 11 patients (22%) it was located at 60-79 cm distance.

The MD size in 17 out of the 50 patients was 1-1.49 cm. It was 3cm in 11 patients (22%). MD width in 24 out of the 50 patients (48%) was 0.5-0.99 cm and in 23 patients (46%) it was 1-2.99 cm.

Table 1: age groups

Age groups	Number (%)
Younger than 2 years old	31 (62)
2 to 4 years old	11 (22)
Older than 4 years	8(16)

Table 2: Presenting symptoms

Symptoms	female	male
	Count(%)	Count(%)
abdominal distention	0	7(17.5)
Bowel obstruction	3(30)	16(40)
Umbilical problems	2(20)	8(20)
GI bleeding	1(20)	3(7.5)
Others*	4(40)	6(15)

* icter, growth failure, abdominal pain, respiratory problems

Discussion

According to our study, the prevalence of MD was 5.4% and the most common finding at the time of admission was bowel obstruction. Some other studies revealed that the most common presentation in MD is bowel obstruction (3, 4, 5, and 6). However, in another study it was suggested that the most common presentation of MD can be ileus in patients younger than 10 years old and bleeding in patients younger than 20 years of age. It is believed that adhesion bands can result in abdominal distention and ileus (8).

In another study, it was shown that bleeding was the most common cause of admission in patients under 10 years old who suffered from MD (7). In Sai Prasad study performed in 2007 on 36 patients aged between 1.5 to 16 years, 44.4% of the cases were admitted with lower gastrointestinal bleeding and 16.7% of patients had bowel obstruction symptoms. Moreover, 11.1% had clinical symptoms of appendicitis and 27.8% were diagnosed incidentally during laparoscopy (6).

According to Shalaby study (9), 55.6% of those patients with MD who were symptomatic at admission had rectal hemorrhage, 33.6% suffered from nausea/recurrent abdominal pain and bowel obstruction symptoms were detected in 11.1% .This study was performed on 23 boys and 10 girls aged 3-12 years during an 8–year interval.

MD is known to be present in 1-4 % of the population (10-13). This condition was seen in 5.4% of our patients. The difference between other studies and ours can be explained at least to some extent by difference in patients' age, race and geographic region.

Conclusion

Meckel's diverticulum was more common in children younger than 2 years and in the majority of patients presented by GI obstructive signs and symptoms.

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