

Management of Asymptomatic or Incidental Meckel's Diverticulum

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This study was conducted to compare the clinicopathologic characteristics of incidentally found and symptomatic cases of Meckel's diverticulum with the aim of arriving at a recommendation regarding the management of incidental cases. A retrospective chart review was performed over a period of 24 years. Incidental group had 52 patients and symptomatic group had 128 patients (71%). Obstruction (42.9%) was the most common presentation, followed by diverticulitis (41.4%). Gastrointestinal hemorrhage was found in 33.6% and was commonly associated with obstruction. If the diverticulum has umbilical connection, mesodiverticular band or heterogeneous on palpation, and if patient has no contraindication for diverticulectomy, we advocate prophylactic resection to avoid future life threatening complications.

Key words: Children, Intestinal obstruction, Management, Meckel's diverticulum.

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Meckel's diverticulum occurs in 2% of the general population and may present at any age. Its management, when found incidentally at laparotomy, remains controversial (1-3). We compared the clinicopathologic characteristics of incidentally found and symptomatic cases of Meckel's diverticulum with the aim of arriving at a recommendation regarding the management of incidental cases.

METHODS

We reviewed the case-records of all patients diagnosed with Meckel's diverticulum at our clinic between 1983 and 2006. Data were collected for the age and sex of the patients, mode of presentation, basis of diagnosis, treatment and outcome. This study was approved by our hospital training board.

The patients were divided into two groups. The symptomatic group included patients who presented

with complications related to the Meckel's diverticulum. The incidental group included patients in whom the Meckel's diverticulum was found incidentally during the course of laparotomy performed for reasons not related to the diverticular complications. Clinicopathologic characteristics of the two groups were compared by Mann-Whitney U test for means and chi-square test for proportions.

RESULTS

Characteristics of the two groups are compared in **Table I**. There were 52 patients in whom Meckel's diverticulum was incidentally detected. Of these, 34 patients were found to have Meckel's diverticulum during appendicitis or small bowel surgery; 15 were operated in the neonatal period for associated congenital anomalies; 2 were operated for hiatus hernia; and 1 for inguinal hernia.

Resection was performed in 25 of 52 patients with incidental Meckel's diverticulum. The reason was

TABLE I CLINICAL AND PATHOLOGIC CHARACTERISTICS OF PATIENTS WITH MECKEL'S DIVERTICULUM

Characteristic	Incidental (n=52)	Symptomatic (n=128)	P value
Age (mean±SD)(y)	6.1±5.3	3.8±3.5	>0.05
Male/female	2.25:1	5.4:1	<0.05
Associated congenital anomalies	18 (34.6%)	10 (7.8%)	<0.05
Connection with umbilicus/mesentery	13 (25%)	23 (17.9%)	>0.05
Ectopic tissue	7 (28%)	37 (28.9%)	>0.05
Complications	nil	5 (3.9%)	>0.05

heterogeneity on palpation in 12, adherent to the sac wall in 6, a mesodiverticular band in 5 and an umbilical connection in 2 cases. Meckel's diverticulum resection was not performed in patients who did not have such signs and who suffered from widespread intra-abdominal infection or marked edema of the intestinal wall. None of the patients where the Meckel's diverticulum was not resected were readmitted at a later date for related complications. Four of the 25 resected specimens contained ectopic gastric mucosa, two colonic mucosa and one pancreatic mucosa on histological examination. There were no complications or death following resection of asymptomatic Meckel's diverticulum.

There were 128 patients with symptomatic Meckel's diverticulum. The most common surgical indications were intestinal obstruction (42.9%), diverticulitis without obstruction and rectal hemorrhage. Hemorrhage without other symptoms occurred in seven patients, all less than 7 years old. All patients with symptomatic Meckel's diverticulum underwent laparotomy and diverticulectomy. The Meckel's diverticulum included gastric mucosa in 28 cases, pancreatic mucosa in 5 cases, gastric and duodenal mucosa in 2 cases, gastric and pancreatic mucosa in 1 case and colonic mucosa in 1 case. Three patients developed postoperative anastomotic leak and all underwent relaparotomy. An ileostomy was used in two and resection and anastomosis in the other patient. One patient developed eventration and incision repair was performed. One patient developed

postoperative bowel obstruction and underwent relaparotomy for lysis of adhesions and re-resection and anastomosis. There was no death in this group.

DISCUSSION

Meckel's diverticulum is regarded as a relatively 'silent' lesion, with symptoms being present in 4.2% to 39% of affected individuals(3-7). Symptomatic lesions occurred in 71% of patients in our series. More than 75% of symptomatic Meckel's diverticulum occur in children younger than 10 years of age.

Although hemorrhage is reported as the most common complication of Meckel's diverticulum in children(5,8), obstruction was the most common presentation in our series. Ectopic tissue, diverticulitis and Meckel's diverticulum inversion were the causes of intussusception. Volvulus due to Meckel's diverticulum was found in 25 cases. Inflammatory symptoms without obstruction were the second most common presentation (41.4%), as compared to the rate of 8% to 20% in other series(8,9). Gastro-intestinal hemorrhage was found in 33.6% in this series and was commonly associated with obstruction (83.7%).

Macroscopic thickening has traditionally been thought to indicate the presence of heterotopic mucosa(10). We found that there was a 28% chance of the Meckel's diverticulum containing ectopic mucosa if it was thickened and there was no statistical difference with the symptomatic group. Our results are similar to the literature (16%-28%)(2,4).

The surgeon should always consider the probability of Meckel's diverticulum if a patient has abdominal pain and/or vomiting and physical examination and ultrasonography findings are not suggestive of appendicitis or air-fluid levels are found on abdominal X-ray. If no surgical pathology is found during laparotomy, it is advisable to inspect the last 2m of ileum up to the ileocecal valve. The proper management of asymptomatic Meckel's diverticulum is still controversial. It is difficult to predict which patients in the incidental group will become symptomatic. We advocate prophylactic resection if the diverticulum has an umbilical connection, mesodiverticular band or is heterogenous on

WHAT THIS STUDY ADDS?

- It is difficult to predict which patient with incidental Meckel's diverticulum would become symptomatic.

palpation and there is no contraindication for diverticulectomy.

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