IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 2 Ver. 2 February. (2018), PP 05-07
www.iosrjournals.org

Original Article

Meckel's Diverticulum and Patent Vitello- Intestinal Duct in Children: A Review of 5 Years of Experience with 16 Cases

Dhiraj Parihar[1], Preeti Raikwar[2], Arvinder Pal Singh Batra[3], Jeewandeep Kaur[4]
[1]*Associate Professor, Pediatric Surgery, BPS GMC for Women, Sonepat.*
[2]*Associate Professor, Pediatric, BPS GMC for Women, Sonepat..*
[3]*Professor & Head, Anatomy, BPS GMC for Women, Sonepat.*
[4]*Assistant Professor, Physiology (C R L), BPS GMC for Women, Sonepat.*
Corresponding author: Preeti Raikwar

Abstract:
Aim: *The aim of this study was to review the management ofsymptomatic Meckel's diverticulum and patent vitello-intestinalduct (PVID) in children.*
Patients and Methods: *This retrospective study included children whounderwent exploratorylaparotomy for the management of symptomaticMeckel'sdiverticulum and PVID between Jan 1, 2012 to Dec 31, 2016.*
Results: *During last 5 years, 16 (14 boys and 2 girls) childrenwere treated for symptomatic Meckel's diverticulum and PVID under 14 years were n=14(87.5%) boys and n=2 (22.5%) girls with a male to female ratio of 7:1. Six (37.5%) were infants, 4 (25%) were 1 to 5 years and 6 (37.5%) were 6 to 14years of age.*
Conclusions: *Symptomatic Meckel's diverticulum and PVID isalso an important cause of acute abdomen / intestinal obstructionin infants and children and delay in seeking treatment is not onlyassociated with morbidity but prone to mortality as well.*
Key word: *meckel's diverticula, intestinal obstruction, gut gangrene, perforation peritonitis*

Date of Submission: 16-01-2018 Date of acceptance: 05-02-2018

I. Introduction

Meckel diverticula is a remnant of theomphalomesenteric or vitelline duct which connects the yolk sac to the midgut through the umbilical cord. Failure of this duct toobliterate during the eighth week in utero can result in several abnormalities including enterocyst, omphalomesenteric fistula orMeckel's diverticulum[1]. In this retrospective study we examined 5 years records of patients from jan 2012 to Dec 2016 and analysed toreview the incidence, presentation and evaluation of Meckel's diverticulosis and diverticulitis

II. Material & method

This is a retrospective, single institution study in children aged below 14 years, who underwent exploratory laparotomy for symptomaticMeckel's diverticulum and PVID. It was conducted in thedepartment of paediatric surgery over a period of 5 years from Jan 2012 to Dec 2016. Details of clinical presentation, diagnosis and management of above patients were reviewed

III. Result

sixteen (13boys and 3 girls) exploratory laparotomies were performed at the department of paediatric surgery for symptomatic Meckel's diverticulum and PVID in children between Jan 2012 to Dec 2016 and these children were included in this study. Age and sex distribution of above 16 cases is given in [Table-1]. children presented as intestinal obstruction*n*=8 (50%) which included 3 cases of intussusception where Meckel's diverticulum was lead point and 3 cases of meckels diverticula with band& 2 cases has inflamed diverticula adherent to surrounding gut. *n*=2(12.5%) patientspresented as diverticulum perforation peritonitis, *n*=3 (18.75%) as umbilical faecal discharge (PVID) and *n*=3 (18.75%) as incidental findings during laparotomy for others. Preoperative diagnosis of patent VID with faecal fistula was obvious &Rest of *n*=13 (81.25%) cases were diagnosed of having Meckel's diverticulum during laparotomy for intestinal obstruction/perforation peritonitis. Findings at laparotomy in order of frequency were: Meckel's diverticulum with gangrene of bowel (*n*=3),Meckel's diverticulum with bands (*n*=2) & perforated Meckel's n=2 was present.

Table 1

Age	sex		Total
	Male	Female	
Infant	5	1	6
1-5 year	3	1	4
Above 5 year	6	0	6

IV. Discussion

In the paediatric population, males comprised 74% of cases of resection for symptomatic Meckel's Diverticulum; overall, diverticulectomy was two times more common in paediatric males than females[2]**.** Thefrequent complications of Meckel's diverticulum are haemorrhage, intestinal obstruction and diverticulitis. Intestinal obstruction is the second most common complication of Meckel's diverticulum[3].

This present study was not an age, sex, or disease-matched study. The objective was to review our 5 years of experience with laparotomies done for symptomatic Meckel's diverticulumand PVID, in the department of paediatric surgery. This study comprised 16 children below 14 years of age and included *n*=14(87.5%) boys and *n*=2 (22.5%) girls with a male to female ratioof 7:1. Six (37.5%) were infants, 4 (25%) were 1 to 5 years and 6 (37.5%) were 6 to 14years of age.

There are plenty of mechanisms for bowel obstruction arising from a Meckel's diverticulum. Obstruction can be caused bytrapping of a bowel loop by a mesodiverticular band, a volvulus of the diverticulum around a mesodiverticular band, andintussusception, as well as by an extension into a hernia sac (Littre's hernia)[4].

With the exception of the paediatric patient presenting with lower gastrointestinal bleeding,differential diagnosis for any other patient group presenting with abdominal complaints, diagnosisis usually made intra-operatively, therefore pre-operative history, exam findings and supportive imaging's are essential tomaking a timely diagnosis.Plain radiographs may help

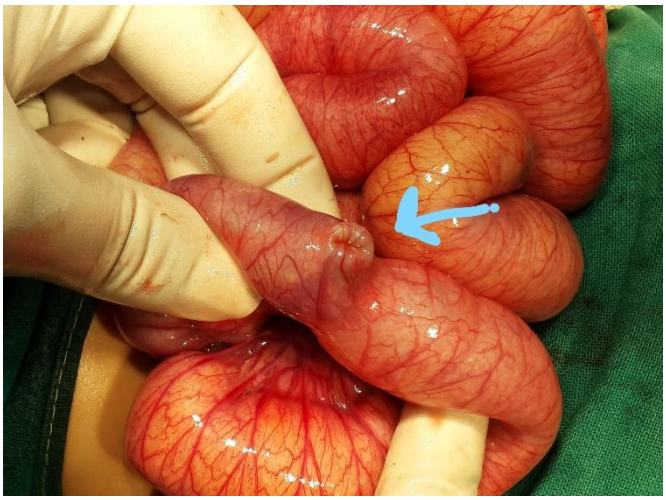

Fig 1 mackel's as lead point

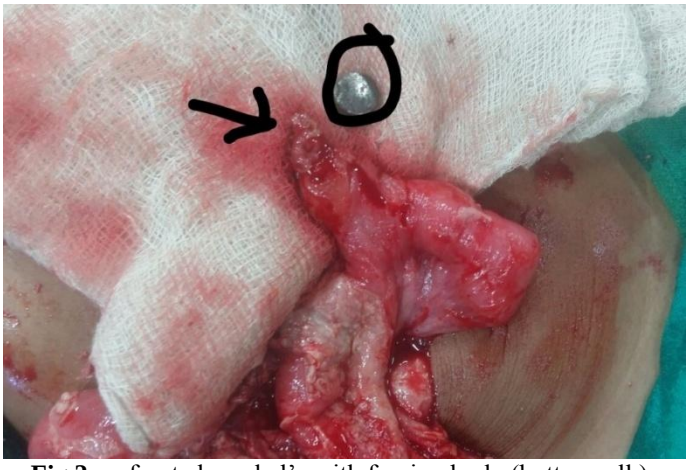

Fig 2 perforated meckel's with foreign body (button cell)

Fig 3 Meckel's with band

Identify complications such as perforation and small bowel obstruction, however there are no findings which are specific enough to confirm or exclude the possibility of Meckel's Diverticulum on plain radiographs.[5]

Ultrasound is not the most sensitive technique fordetecting Meckel's Diverticulum, and an inflamed Diverticulum may appear similar to a duplication cyst.[5]

Abdominal CT is used for complicated cases such as intussusceptions. CT can help to confirm the presence of intussusception and distinguish between lead point and non-lead point intussusceptions[6].

The Meckel's scan uses technetium-99m pertechnetate which is taken up by ectopic gastric mucosa. This nuclear medicine scan is highly specific at 95%, however the sensitivity is around 85% in children and decreases to 54-60% in adults [5&7]. False positive results may be seen in duodenal or jejunal duplication cysts which contain gastric mucosa, also in cases of volvulus, inflammatory bowel disease and in post-op patients [5]. False negative scans may be seen in cases of Meckel's Diverticulum where ectopic gastric mucosa is absent [5]

Endoscopically, the use of capsule endoscopy and double balloon endoscopy and identify areas of abnormality, particular in patients who present with symptoms such as bleeding.[8]

Surgical resection is the treatment for symptomatic Meckel's Diverticulum; this may include simple diverticulectomy or bowel resection. Diverticula with a broad base or those associated with complications such as hemorrhage are removed by bowel resection.[2]

V. Conclusion

Meckel's diverticulum constitutes the most common benignmalformation of the digestive tube and it may present as intestinalobstruction, perforation peritonitis and diverticulitis, lower GIbleeding and many of them with gangrenous bowel. Urgent surgicalintervention is needed to prevent morbidity as well as mortality.

References

[1]. Yahchouchy EK, Marano AF, Etienne JC, Fingerhut AL. Meckel's diverticulum.J Am Coll Surg. 2001; 192: 658-662.
[2]. Ruscher KA, Fisher JN, Hughes CD, Neff S, Lerer TJ, Hight DW, et al. National trends in the surgical management of Meckel's diverticulum. J Pediatr Surg. 2011; 46: 893-896.
[3]. Nath DS, Morris TA. Small bowel obstruction in an adolescent: a case of Meckel's diverticulum. Minn Med 2004 Nov;87(11):46-48
[4]. Prall RT, Bannon MP, Bharucha AE. Meckel's diverticulum causing intestinal obstruction. Am J Gastroenterol 2001 Dec;96(12):3426-3427.
[5]. Thurley PD, Halliday KE, Somers JM, Al-Daraji WI, Ilyas M, Broderick NJ.Radiological features of Meckel's diverticulum and its complications. ClinRadiol. 2009; 64: 109-118.
[6]. Johnson GF, Verhagen AD. Mesodiverticular band. Radiology 1977 May;123(2):409-412.
[7]. Elsayes KM, Menias CO, Harvin HJ, Francis IR. Imaging manifestations of Meckel's diverticulum. AJR Am J Roentgenol. 2007; 189: 81-88
[8]. Taniuchi K, Tanaka H, Iwamura S, Mori I. Meckel's diverticulum preoperatively diagnosed by double-balloon endoscopy. Intern Med. 2012; 51: 1023-1026.

Preeti Raikwar "Meckel's Diverticulum and Patent Vitello- Intestinal Duct in Children: A Review of 5 Years of Experience with 16 Cases."." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 2, 2018, pp. 05-07.