International Journal of Health Sciences and Research
www.ijhsr.org ISSN: 2249-9571

Case Report

Perforation of Meckel's Diverticulum: Rare Presentation

Yashas H R[1], Srinath R[2], Geetha Avadani[3], Rahul[4]

[1]Assistant Professor, [2]Professor, [3]Professor & HOD, [4]Post Graduate,
Adichunchanagiri Institute of Medical Sciences, B G Nagara, Nagamangala Taluk, Mandya, Karnataka.

Corresponding Author: Yashas H R

Received: 31/07/2015 *Revised: 21/08/2015* *Accepted: 26/08/2015*

ABSTRACT

Introduction: Meckel's diverticulum (MD) is a true intestinal diverticulum that results from the failure of the vitelline duct (omphalomesenteric duct) to obliterate during the 5th week of fetal development. MD is the most common congenital abnormality occurring in about 2% of the population. MD is typically lined by ileal mucosa, but other tissue types are also found with varying frequency.
Discussion: Meckel's diverticulum can mimic appendicular perforation/bowel perforation in various ways and thus should be considered as a differential diagnosis. Only about 4-16% of cases will lead to complications, which include haemorrhage, intussusceptions, inflammation and occasionally perforation, which occurred in our patients. Complications are much more common in males, and the incidence of complications decreases with age, with the majority occurring in pediatric population. The diagnosis of complicated MD presents a number of challenges because of its various presentations.
Conclusion: In our study, 4 cases presented to our ER, there was no foreign body & hp report suggested Meckel's diverticulitis. So, perforation was due to increased intraluminal pressure due to luminal stenosis caused by Meckel's diverticulitis in these cases, which rarely occurs.

Key words: Meckel's diverticulum, perforation, hemorrhage, intussusceptions.

INTRODUCTION

Meckel's diverticulum (MD) is a true intestinal diverticulum that results from the failure of the vitelline duct (omphalomesenteric duct) to obliterate during the 5th week of fetal development. [1]

MD is the most common congenital abnormality occurring in about 2% of the population.

MD is typically lined by ileal mucosa, but other tissue types are also found with varying frequency.

The heterotopic mucosa is most commonly gastric (present in 50% of all MD's) and pancreatic mucosa is encountered in about 5% of diverticula; less commonly, these diverticula may harbor colonic mucosa. [2]

This is important because peptic ulceration of this or adjacent mucosa can lead to painless bleeding, perforation, or both.

Table 1

	Case 1	**Case 2**
AGE	9 year	14 year
SEX	Male	Male
C/C	Pain abdomen, vomiting	Pain abdomen, vomiting, fever (104 F)
O/E	Abd distension, diffuse tend & guarding in RIF	Abd distension, diffuse tend & guarding in all quadrants
LAB INVESTIGATIONS	HB 10gm%, WBC: 13000cells/mm3, PMNS :89%	HB 4gm%, WBC: 9500 cells/mm3 PMNS: 90%
USG SCAN	Pyo peritoneum	Hollow viscus perforation
ERECT XRAY ABDOMEN	Air under diaphragm	Air under diaphragm
ON TABLE	Perforated MD	Perforated MD
HP REPORT	Meckels diverticulitis with ectopic gastric tissue forming adenoma	Meckels diverticulitis with ectopic gastric tissue
APPENDIX	Inflammed	Non inflammed

Table 2

	Case 3	**Case 4**
AGE	12 YEAR	10 YEAR
SEX	Male	Male
C/C	Pain abdomen, vomiting, fever (100 F)	Pain abdomen
O/E	Tend at RIF, rebound tend +	Abd distension, diffuse tend & guarding in all quadrants
LAB INVESTIGATIONS	HB: 9 gm% WBC:12800 cells/mm3,PMNS: 88%	HB: 9.8 gm% WBC: 13900 cells/mm3PMNS: 82%
USG SCAN	Probe tend in RIF with minimal fluid collection	Hollow viscus perforation
ERECT XRAY ABDOMEN	Normal	Air under diaphragm
ON TABLE	MD perforated at tip	Perforated MD
HP REPORT	Meckels diverticulitis with ectopic gastric tissue	Meckels diverticulitis with ectopic gastric tissue & pancreatic tissue
APPENDIX	Non inflammed	Inflammed.

Figure 1-Erect X-ray abdomen showing Air under diaphragm

Figure 3 showing Case 2

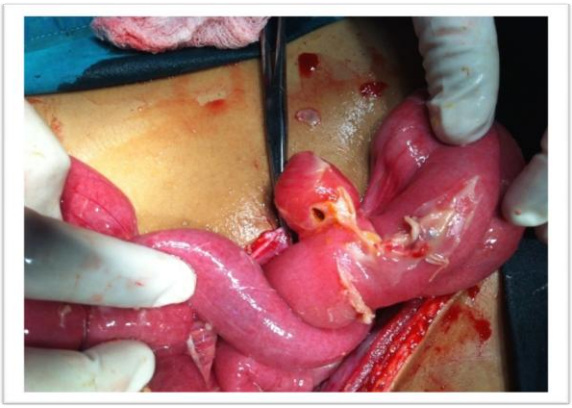

Figure 2 showing Case 1

Figure 4 showing Case 3

Figure 5 showing case 4

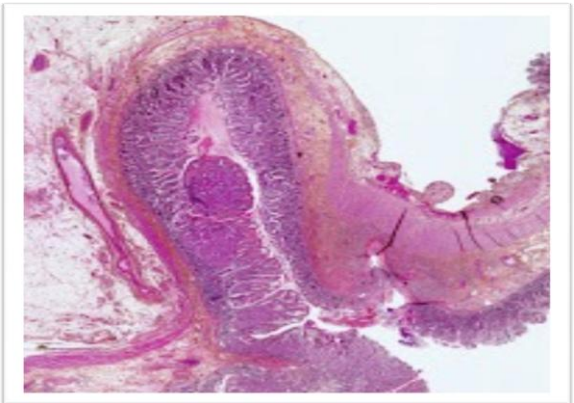

Figure 6 showing Histology

DISCUSSION

Meckel's diverticulum can mimic appendicular perforation/bowel perforation in various ways and thus should be considered as a differential diagnosis.

Only about 4-16% of cases will lead to complications, [3] which include haemorrhage, intussusceptions, inflammation and occasionally perforation, which occurred in our patients.

Complications are much more common in males, and the incidence of complications decreases with age, with the majority occurring in pediatric population. [4]

The diagnosis of complicated MD presents a number of challenges because of its various presentations.

The most common presentation in the pediatric age group is painless rectal bleeding. In a retrospective study of 71 pediatric patients with diagnosed MD, 55.5% of the patients initially presented with rectal bleeding, [5] however, this number varies among studies. [6-8]

In a study of 776 patients, Kusumoto et al. found that an accurate preoperative diagnosis was made only in 11% of patients presenting with symptoms other than bleeding, compared to 88% in bleeding patients. [10]

Many of other presenting symptoms, such as abdominal pain and nausea, are non specific and may mimic appendicitis.

In one study, 11% of children with complicated MDs were initially diagnosed with appendicitis. [6] Ueberrueck et al. found that 5 MDs were found incidentally in a series of 311 appendicectomies performed at one institution over 3 year. [10]

Perforation of MD is usually caused by foreign bodies, a very rare complication as most foreign bodies pass through the GI tract without any consequences.

Perforation of Meckel's diverticulum caused by a fish bone has rarely been reported in the literature.

There seems to be a tendency for foreign bodies to lodge in the blind pouch of Meckel's diverticulum. [11]

The mechanism of perforation, as it was suggested by Ward-McGuard, is a combination of local inflammation due to irritation of the foreign body, and pressure necrosis of the diverticulum wall, secondary to attempts by peristalsis to push the foreign body toward the tip of the diverticulum. [12]

CONCLUSION

In our study, 4 cases presented to our ER, there was no foreign body & hp report suggested Meckel's diverticulitis.

So, perforation was due to increased intraluminal pressure due to luminal stenosis caused by Meckel's diverticulitis in these cases, which rarely occurs. Complications of

MD are uncommon and can be difficult to diagnose.

Among the complications, perforation is rare complication, which occurs in adjacent ileum. MD perforation by a foreign body is a very rare condition. Perforation of MD per se is a rare complication, due to Meckel's diverticulitis.

REFERENCES

1. Peranteau WH, Smink DS: Appendix, Meckel's, and Other Small Bowel Diverticula. In *Maingot'sAbominal Operations*. 12th edition. Edited by Zinner MJ, Ashley SW. McGraw-Hill; 2013:643-644.
2. Evers BM: Small Intestine. In *Sabiston Textbook of Surgery*. 18th edition. Edited by Townsend CM. Elsevier; 2008:1321-1323.
3. Pollak Raymond: Adjunctive Procedure in Intestinal Surgery. In *Mastery of surgery* Fifth edition.Edited by Fischer JE. 2007, 1392-1393.
4. Kloss BT, Broton CE, Sullivan AM: Perforated Meckel Diverticulum. *Int J Emerg Med*. 2010 December;3(4):455-457.
5. Menezez M, Tareen F, Saeed A, Khan N, Puri P: Symptomatic Meckel's Diverticulum in Children: A 16-year Review. *PediatrSurg Int*. 2008;24:575-577.
6. Sai Prasad TR, Chui CH, singaporewella FR, Ong CPC, Low Y, Yap TL, Jacobsen AS: Meckel's Diverticular Complications in Children: Is Laproscopy the Order of the Day? *PediatrSurg Int*. 2007;23:141-147.
7. 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(2):109-118.
8. McKay R: High Incidence of Symptomatic Meckel's Diverticulum in Patients less than 50years of age: An Indication for Resection.*Am J Surg*. 2007;73:271-275.
9. Kusumoto H, Yoshida M, Takahashi I, Anai H, Maehara Y, Sugimachi K: complications and Diagnosis of Meckel's Diverticulum in 776 Patients. *Am J Surg*. 1992;164:382-383
10. Ueberruek T, Meyer L, Koch A, Hinkel M, Kube R, Gastinger I: The Significance of Meckel's Diverticulum in Appendicitis- A Retrospective Analysis of 233 Cases: *World J Surg*. 2005;29:455-458.
11. Chan KW: Perforation of Meckel's diverticulum caused by a chicken bone. *J Med Case Rep* 2009, 3:48
12. Roessel CW: Perforation of Meckel's diverticulum by foreign body: case report and review of the literature. *Ann Surg* 1962, 156:972-975.

How to cite this article: Yashas HR, Srinath R, Avadani G et. al. Perforation of Meckel's diverticulum: rare presentation. Int J Health Sci Res. 2015; 5(9):564-567.

****