A Rare Case of Twice Perforated Appendix

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Abstract

Stump appendicitis is a rare complication of appendectomy. It was first described in 1945 by Rose [1]. To date, it remains both a diagnostic dilemma and a management challenge for clinicians.

We present a case of a 58-year-old gentleman with a past history of appendectomy, who presented with cardinal symptoms and signs of intestinal obstruction. Assessment with CT abdomen revealed pericecal inflammation, pneumoperitoneum, and multiple intra-abdominal collections; however, stump appendicitis was not identified. He underwent surgery, during which stump appendicitis was diagnosed intraoperatively, and a completion appendectomy was performed. We review the literature regarding the diagnostic challenges and treatment strategies for stump appendicitis.

Keywords: Stump Appendicitis, Appendectomy

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Introduction

Acute appendicitis is a very common surgical pathology, and appendectomy is the widely accepted gold standard for treatment. It is the most frequently performed emergency surgical procedure worldwide [1–3]. Luminal obstruction of the appendiceal orifice by fecolith or lymphoid hyperplasia best describes the pathophysiology of appendicitis [1].

Stump appendicitis is relatively rare [1,2]. It is defined as recurrent inflammation of residual appendiceal tissue post-appendectomy [3]. First described by Rose in 1945 [1], its diagnosis is often difficult or delayed due to a low index of suspicion. Similar to primary appendicitis, delayed recognition predisposes patients to perforation and its sequelae.

Literature on stump appendicitis is limited, and this case report contributes to the expanding body of knowledge on this condition

Case Presentation

A 58-year-old gentleman who had undergone laparoscopic appendectomy for a perforated appendix in 2021 presented with acute intestinal obstruction. He reported right iliac fossa pain for three days, associated with vomiting, abdominal distention, and absolute constipation. Physical examination revealed abdominal distention with tenderness in the lower quadrants. Blood investigations showed leukocytosis and metabolic acidosis; other parameters were relatively normal. The initial clinical impression was perforated diverticulitis, prompting a contrast-enhanced CT scan of the abdomen. Imaging revealed pneumoperitoneum, multiple intra-abdominal collections, and a thickened cecal wall.

He underwent laparotomy, during which intraoperative findings revealed perforation at the tip of the appendiceal stump, with pus collections in the right paracolic gutter, pelvis, and interloop spaces. The base of the appendix appeared healthy. A completion appendectomy was performed. He was discharged on postoperative day three following an uneventful recovery. Histopathological examination confirmed stump appendicitis with perforation and no evidence of granuloma or malignancy.

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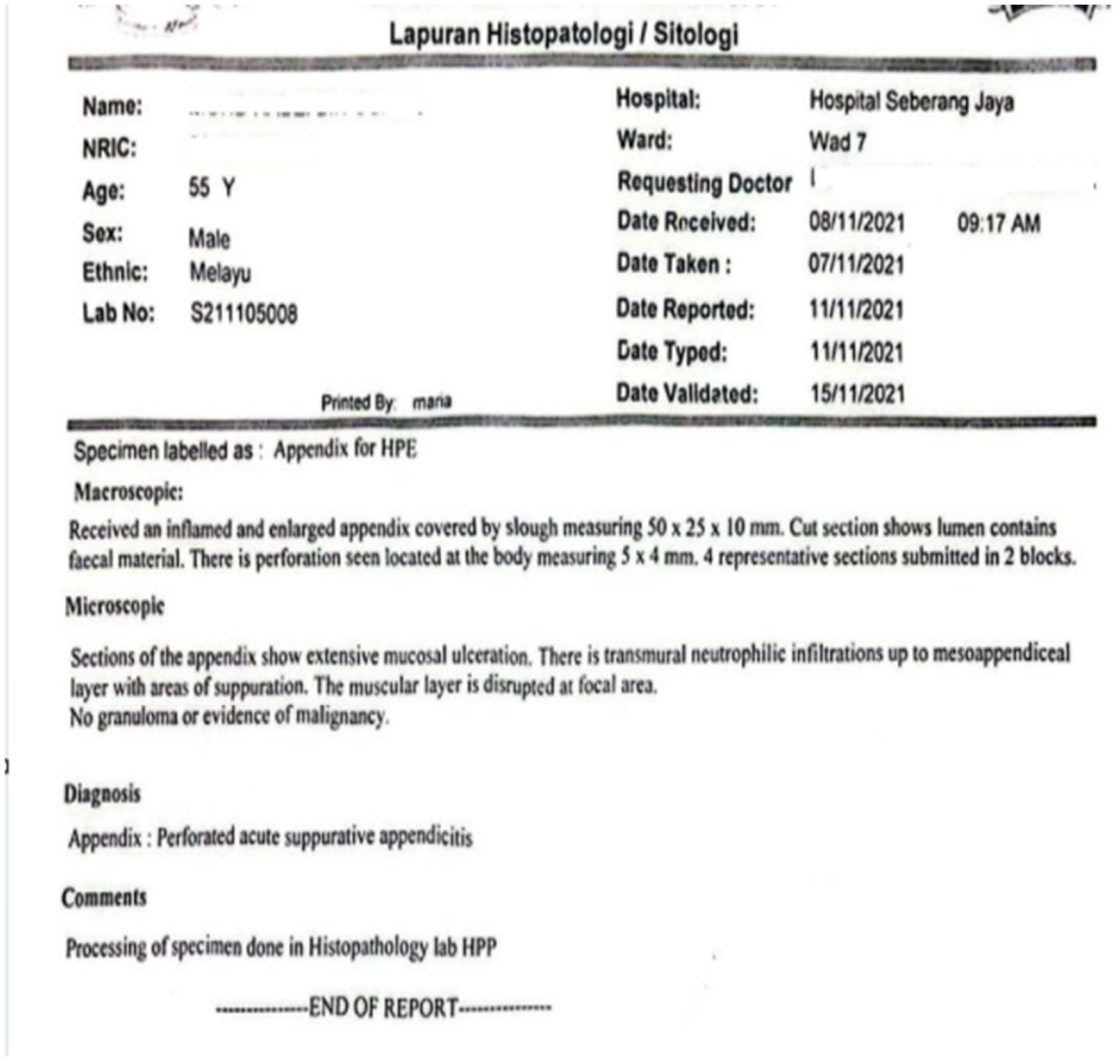


Lapuran Histopatologi / Sitologi

Name:		Hospital:	Hospital Seberang Jaya
NRIC:		Ward:	Wad 7
Age:	55 Y	Requesting Doctor	
Sex:	Male	Date Received:	08/11/2021 09:17 AM
Ethnic:	Melayu	Date Taken :	07/11/2021
Lab No:	S211105008	Date Reported:	11/11/2021
		Date Typed:	11/11/2021
Printed By: maria		Date Validated:	15/11/2021

Specimen labelled as : Appendix for HPE

Macroscopic:

Received an inflamed and enlarged appendix covered by slough measuring 50 x 25 x 10 mm. Cut section shows lumen contains faecal material. There is perforation seen located at the body measuring 5 x 4 mm. 4 representative sections submitted in 2 blocks.

Microscopic

Sections of the appendix show extensive mucosal ulceration. There is transmural neutrophilic infiltrations up to mesoappendiceal layer with areas of suppuration. The muscular layer is disrupted at focal area.
No granuloma or evidence of malignancy.

Diagnosis

Appendix : Perforated acute suppurative appendicitis

Comments

Processing of specimen done in Histopathology lab HPP

----------END OF REPORT----------

Fig. 1: 2021 - HPE showing perforated appendix at body

Discussion

In 1735, Claudius Amyand was the first to describe appendectomy [1]. In 1945, Rose documented the occurrence of stump appendicitis in patients who had previously undergone appendectomy [3,4]. To this day, it remains a diagnostic challenge for clinicians.

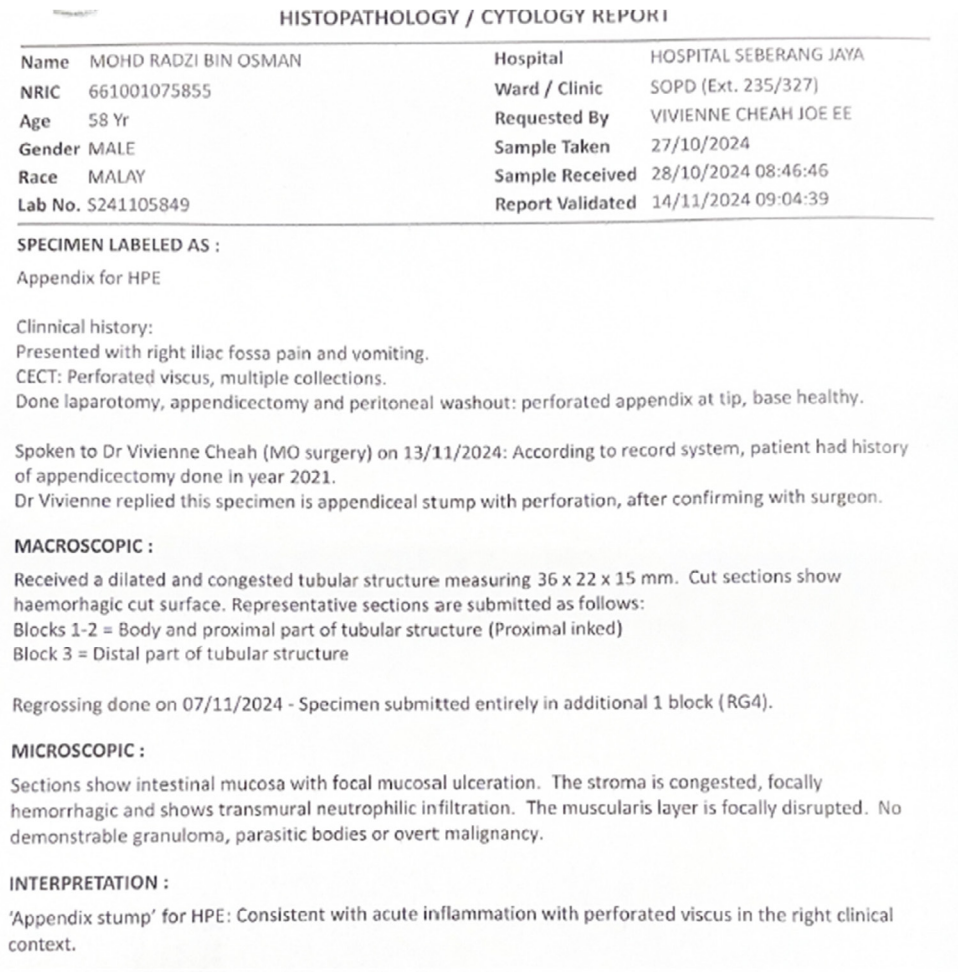
Appendiceal stumps typically range from 0.5 cm to 5.0 cm in length [2]. Clinical presentation of stump appendicitis may occur anytime between two months and 50 years following the initial appendectomy [3]. In our case, it occurred three years after the initial surgery. The incidence is poorly documented in the literature, leading to underestimation of its true frequency.

Incomplete resection of the appendix at its base is believed to be the underlying cause of recurrent inflammation resulting in stump appendicitis [5]. Studies have reported a higher incidence following laparoscopic management compared to the open surgical approach, which may be attributed to the lack of tactile feedback and narrower field of vision inherent in laparoscopic techniques [2,4,6].

It is exceptionally rare to encounter appendiceal perforation twice in the same patient. A literature review identified only one prior case, published by Pueya Rashid Nashidengo et al. in the Pan African Medical Journal in 2022 [8].

Imaging can be helpful in selected cases, although CT scans of the abdomen and pelvis are not specific for stump appendicitis. Nonetheless, they may raise clinical suspicion by revealing features similar to those seen in acute appendicitis [2].

Completion appendectomy remains the cornerstone of treatment [4,6,7]. Debate often arises regarding the choice of surgical approach, which should be guided by the preoperative diagnosis and the patient's clinical condition [6]. The literature advises against extensive procedures such as hemicolectomy if the appendiceal stump can be clearly identified and



HISTOPATHOLOGY / CYTOLOGY REPORT

Name	MOHD RADZI BIN OSMAN	**Hospital**	HOSPITAL SEBERANG JAYA
NRIC	661001075855	**Ward / Clinic**	SOPD (Ext. 235/327)
Age	58 Yr	**Requested By**	VIVIENNE CHEAH JOE EE
Gender	MALE	**Sample Taken**	27/10/2024
Race	MALAY	**Sample Received**	28/10/2024 08:46:46
Lab No.	S241105849	**Report Validated**	14/11/2024 09:04:39

SPECIMEN LABELED AS :

Appendix for HPE

Clinnical history:
Presented with right iliac fossa pain and vomiting.
CECT: Perforated viscus, multiple collections.
Done laparotomy, appendicectomy and peritoneal washout: perforated appendix at tip, base healthy.

Spoken to Dr Vivienne Cheah (MO surgery) on 13/11/2024: According to record system, patient had history of appendicectomy done in year 2021.
Dr Vivienne replied this specimen is appendiceal stump with perforation, after confirming with surgeon.

MACROSCOPIC :

Received a dilated and congested tubular structure measuring 36 x 22 x 15 mm. Cut sections show haemorhagic cut surface. Representative sections are submitted as follows:
Blocks 1-2 = Body and proximal part of tubular structure (Proximal inked)
Block 3 = Distal part of tubular structure

Regrossing done on 07/11/2024 - Specimen submitted entirely in additional 1 block (RG4).

MICROSCOPIC :

Sections show intestinal mucosa with focal mucosal ulceration. The stroma is congested, focally hemorrhagic and shows transmural neutrophilic infiltration. The muscularis layer is focally disrupted. No demonstrable granuloma, parasitic bodies or overt malignancy.

INTERPRETATION :

'Appendix stump' for HPE: Consistent with acute inflammation with perforated viscus in the right clinical context.

Fig. 2: 2024 - HPE showing perforated appendix

safely excised at its base [6,7].

Conclusion

Stump appendicitis is a rare complication of appendectomy, with reported incidence and prevalence increasing in association with the widespread adoption of the laparoscopic approach [2,4,6]. Imaging modalities can aid in diagnosis, though they may not always be definitive. Prompt recognition is critical to prevent serious complications. Importantly, a history of prior appendectomy does not exclude the possibility of stump appendicitis and should remain within the clinician's differential diagnosis.

Conflict of Interest

All authors declare no conflict of interest.

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