Case report **AJSRR (2022) 5:38**

American Journal of Surgical Research and Reviews
(ISSN:2637-5087)

Two attacks of acute appendicitis managed with two appendectomies procedures. Duplicated vermiform appendix: a case report and review of literature

Fatimah Al Jaber M.D, Moayad Alzamil M.D, Majed Alanazi M.D, Mohammed Aljabali M.D, Ali Almutairi M.D, Bandar Ali M.D*

Department of surgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

ABSTRACT

Vermiform appendix anomalies including duplicated appendix are very rare with 0.004% incidence and are usually incidental findings diagnosed intraoperatively. The diagnosis can also be missed even intraoperatively during appendectomy procedure and the patient might present with another attack of acute appendicitis. We report a case of a 34-year-old male patient who presented with a typical picture of acute appendicitis based on clinical assessment, laboratory investigation and radiological studies with his past surgical history significant for appendectomy done few months prior. He underwent laparoscopic appendectomy two times within a 6-month period for two attacks of acute appendicitis both confirmed on histopathological examination.

Keywords: Double appendix, Laparoscopy, Acute appendicitis

***Correspondence to Author:**
Bandar Ali M.D,
Department of Surgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

How to cite this article:
Fatimah Al Jaber, Moayad Alzamil, Majed Alanazi, Mohammed Aljabali, Ali Almutairi, Bandar Ali.Two attacks of acute appendicitis managed with two appendec-tomies procedures. Duplicated vermiform appendix: a case report and review of literature. American Journal of Surgical Research and Reviews, 2022, 5:38.

eSciPub LLC, Houston, TX USA.
Website: https://escipub.com/

Introduction

Acute appendicitis is a common surgical problem that requires emergency surgical intervention in form of appendectomy. This diagnosis can also be made, in rare occasions, in patient who underwent previous appendectomy for acute appendicitis again. In such cases anomaly of the vermiform appendix is present in form of duplication which was missed in the initial operation. Appendix duplication is usually an intraoperative diagnosis of incidental findings that are rarely identified on preoperative workup.

Case report

A 34-year-old Saudi male who is not known to have any chronic medical illnesses before. Presented to the Accidents and Emergency department complaining of abdominal pain of 2 days duration. The pain started in the peri-umbilical area then shifted to right iliac fossa. It was associated with anorexia, nausea, vomiting and subjective fever. Patient past surgical history was significant for uneventful laparoscopic appendectomy done six months prior to this presentation in another hospital.

Upon assessment, he was a slightly tachycardiac with pulse rate of 109 beats/minutes, febrile with temperature documented to be 39°C, his blood pressure was 110/62 mmHg, and his Oxygen saturation was maintained around 98% in room air. Abdominal exam showed a soft abdomen with tenderness and rebound tenderness over the right iliac fossa region, without any peritoneal signs. Laboratory investigations showed a leukocytosis of 16.6 $x10^9$ with neutrophils shift of 15.1$x10^9$. A computed tomography scan was ordered for him that shows [figure1] inflamed appendix about 4-5 cm in length extending postero-superiorly from the cecum with its diameter measured 1.1 cm in maximum with adjacent fat stranding and minimal free fluid as well as reactive regional lymph nodes. No detectable drainable collections and no free abdominal air. Incidental small urinary bladder diverticulitis adjacent to the right vesico-ureteric junction, could represent congenital Hutch diverticulum.

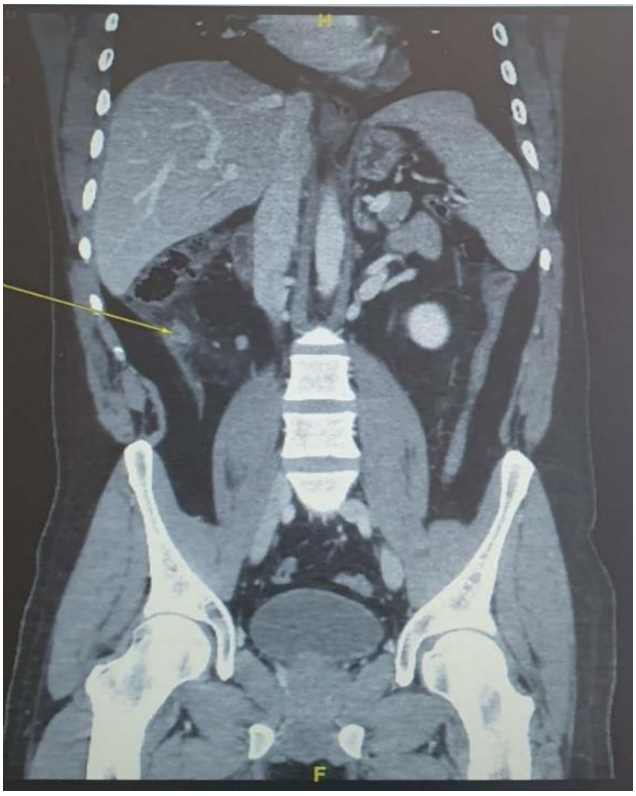

Figure.1 Coronal view of pre op CT abdomen showing acutely inflamed appendix

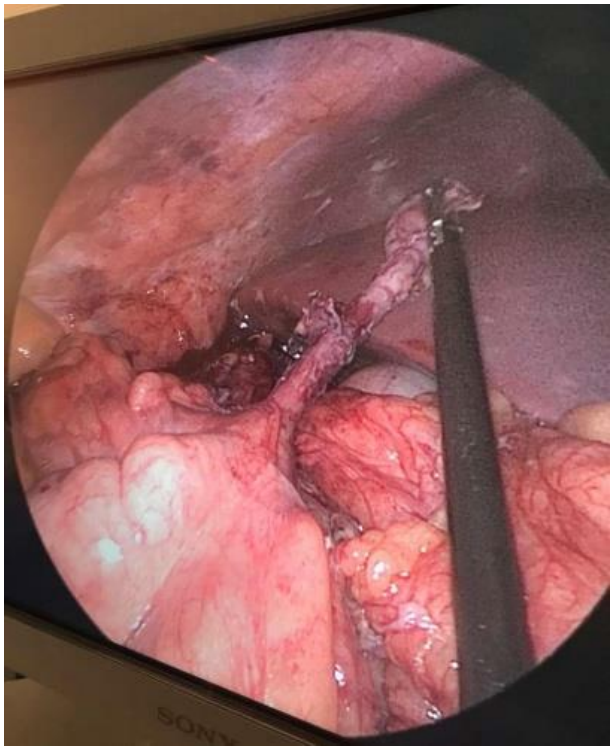

Figure 2. Intra-operative view of the appendix

The patient was admitted to surgical ward in which he was started on intravenous antibiotics and prepared for surgery. He was taken for a diagnostic laparoscopy on the same day.

Intraoperatively [figure2], there was a perforated sub-serosal sub-hepatic appendicitis. Appendectomy was done using endo GIA. It was uneventful procedure. The final histopathology confirmed the presence of acute suppurative appendicitis, the appendix specimen measuring 4.0 X 0.6 cm, outer surface was gray tan and congested and the lumen filled with fecolith material. The patient had a smooth post operative course and was discharged home in stable condition.

Discussion

The presence of a duplicated appendix is a very rare anomaly with an incidence of 0.004– 0.009% [1]. It can be associated with other congenital anomalies including duplicated cecum.

The first classification system of duplicated appendix was proposed in 1936 by Cave [2]. His original classification was modified after that in 1962 by Wallbridge [3] and in 1993 by Bierman [4]. The Modified “Cave-Wallbridge” system is the most frequently used system currently. It classified the duplicated appendix into four groups (A-D). Type A includes a partially duplicated appendix arising from a single cecum and is not associated with other congenital anomalies.

Type B includes a completely separated duplicated appendix arising from a single cecum and is further subdivided into B1 “Bird-like or Avian” which is associated with other congenital anomalies (including anal and/or colonic atresia, ectopic bladder, anomalies of external genitalia, characteristic communication between the most distal small bowel, and bladder) and B2 “Tenia coli” which is not associated with other congenital anomalies. Type C includes a completely separated duplicated appendix arising from double cecum (one appendix per each cecum) and is associated with other congenital anomalies (including hindgut duplication which can involve terminal ileum, double colon, anus, uterus, vaginal, external genitalia, bladder, lower vertebral column). Type D “Horseshoe” includes single appendix that has two opening both open into a single common cecum and is not associated with other

congenital anomalies. [1] [5] In a comprehensive review of a total of 141 appendiceal duplication cases that was published in 2017, by Nageswaran, type B2 “Cave-Wallbridge” was the most common [6]. Our case, most likely fall in type B1 “Cave-Wallbridge” as there were two separate appendices with single

cecum and was also associated with an incidental finding of congenital urinary bladder diverticulum.

A duplicated appendix might be missed to diagnose preoperatively by radiological studies [1]. It is usually an incidental intraoperative finding that might be even missed lifelong if remains asymptomatic [7].

The patients may also present with more than one episode of acute appendicitis as in our case, wither as a simple or complicated appendicitis if delayed or misled by the previous attack. Our patient developed a second attack of acute appendicitis within a 6-month period from the first

one for which he had undergone two separate laparoscopic appendectomies procedures in two different hospitals, and both confirmed by final histopathological examination to be acute appendicitis. Histopathological examination in the first hospital reported an appendix specimen measuring 4x1.5 cm, sections from appendix revealed mucosal ulceration with transmural neutrophilic infiltration along with muscle necrosis. The inflammation extends to the serosa and peri-appendiceal fat. Negative for dysplasia and neoplasia.

It is not uncommon to have the second appendix to go unnoticed intraoperatively if a thorough careful exploration was not carried out to identify any possible anomaly that might present. Giving the rarity of this condition and the presence of the first appendix in the usual typical anatomical location, a second appendix is probably unlikely to be found and can be easily missed as in our case. The second appendix was probably missed in the first appendectomy procedure due to its sub- serosal sub-hepatic location along with identification of the first appendix that would have distracted the surgeon from looking for another one.

A case like our patient have been reported by Tudor v. Mein about a child whom within a 5-month period, has undergone appendectomy two times and was confirmed on final histopathological exam for the second appendectomy case to be original appendix not a remnant stump of the first appendix. [8].

This emphasized the surgeons to have a meticulous intraoperative assessment looking for such anomalies and if double appendices are identified, both should be removed to confirm the findings and to avoid any future confusion or any medico legal consequences [9]. In addition, identifying double appendix will bring attention to consider other associated congenital conditions that might result in serious morbidity and / or mortality if not diagnosed and managed.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

References

[1]. Ashwin Raja A, Tamilarasy Vasanthakumaran, A rare case of duplicated appendix presenting as perforated appendicitis, Journal of Surgical Case Reports, Volume 2020, Issue 7, July 2020, rjaa133,

[2]. Cave AJ. Appendix Vermiformis Duplex. J Anat. 1936;70(2):283–292.

[3]. Wallbridge PH. Double appendix. Br J Surg. 1962;50:346–347.

[4]. Biermann R, Borský D, Gogora M. Die Appendicitis duplexeine pathologische Rarität [in German] Chirurg. 1993;64:1059–1061

[5]. Bhat GA, Reshi TA, Rashid A. Duplication of Vermiform Appendix. Indian J Surg. 2016;78:63-4.

[6]. Nageswaran, H., Khan, U., Hill, F. *et al.* Appendiceal Duplication: A Comprehensive Review of Published Cases and Clinical Recommendations. *World J Surg* **42,** 574–581 (2018).

[7]. Rami Mustafa Ayoub, Ibrahim Abdel Qader Khrais, Omaymah abdel mon’em al-shweiki, Allaa Taha Roto, Firas Walid Obeidat, Bifid appendix: a case report and a review of literature, Journal of Surgical Case Reports, Volume 2019, Issue 4, April 2019, rjz132

[8]. Maizels G. Duplication of the vermiformis appendix. *S Afr Med J* 1966;40:1123.
[9]. Mitchell IC, Nicholls JC: Duplication of the vermiform appendix: report of a case: review of the classification and medicolegal aspects. Med Sci Law. 1990;30:124–126.