Meckel's Diverticulum: Should it be Excised Prophylactically in Service Personnel?

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SUMMARY: In a four month period in 1992 at a small military wing of a civilian hospital three Meckel's Diverticulae were removed from patients suspected of having complications in their vermiform appendix. One of the diverticulae was inflamed and was the cause of the symptoms. The second was a symptomatic but it and the appendix showed transmural granulomatous inflammation caused by infection with Yersinia pseudotuberculosis. The third also asymptomatic was found to contain carcinoid tumour. On investigation with urinary estimations of 5 Hydroxy Indole Acetic Acid there was no sign of residual carcinoid tumour in the patient. None of the patients has had complications from their surgery. Review of the literature shows that prophylactic excision of asymptomatic Meckel's Diverticulae to prevent possible complications is justified in persons under the age of 40 such as is the typical service population.

Introduction

Meckel's Diverticulum is the remnant of the fetal vitello intestinal duct. The incidence in the population is approximately 2% or one should be found in every 50 laparotomies if looked for. In most individuals who possess a Meckel's Diverticulum no symptoms are experienced in their lifetime. In a proportion however it can be symptomatic and of those a proportion can have fatal complications. An argument therefore exists as to whether incidentally discovered Meckel's Diverticulae should be prophylactically excised or left alone.

I report the interesting findings of three Meckel’s Diverticulae discovered in patients who were operated on in the Military Wing, Musgrave Park Hospital during the Spring and Summer of 1992 suspected of having complications arising from their vermiform appendix.

Case 1:
A 30 year old man was investigated for recurrent abdominal pain with signs of subacute intestinal obstruction associated with a tender lower abdominal mass. In two previous admissions his pain had settled spontaneously with antibiotics and intravenous fluids.

Appendix Mass or Crohn's Disease were the main differential diagnoses and he was investigated with barium studies. These showed no large or small bowel abnormality but faeces in the lumen of the appendix.

He was admitted with a further, more severe episode of pain and a laparotomy was performed. An inflamed Meckel's Diverticulum was found within an inflammatory mass and there was evidence of intralumenal bleeding in the ileum. Histology confirmed an inflamed Meckel's Diverticulum with ectopic gastric mucosa.

Case 2:
An 18 year old girl was admitted with abdominal pain, acute appendicitis was diagnosed clinically and appendectomy was performed. The appendix was normal and a few enlarged mesenteric lymph nodes were found, one of which was removed for histology.

On inspection of the ileum, a Meckel's Diverticulum was found which was excised with a wedge of ileum. Histology confirmed non-inflamed appendix and non-specific reactive lymph node. The diverticulum however contained a small nest of carcinoid tumour.

The patient was subsequently investigated with three 24 hour urine collections for 5-Hydroxy Indole Acetic Acid. Two of these were normal, the third was slightly raised in keeping with dietary intake.

Six months since the last of these cases no patient has been re-admitted with any complication.

Discussion

These three Meckel’s Diverticulae represent the number which would be found in 150 appendix operations or that which would only be found in a period of several years in a small military hospital.

An argument exists whether incidentally found Meckel’s Diverticulae, as in cases 2 & 3, should be prophylactically excised or not when operating for abdominal pain. The main arguments for are that:
1. Meckel’s Diverticulum can be the site of ectopic gastric or pancreatic tissue, which can lead to the complications of peptic ulceration and inflammation respectively.

2. Mechanical complications such as band obstruction, perforation, intussusception and hernial entrapment can occur.

3. More rarely Meckel’s Diverticulum can be the site of malignancy.

When operating on patients for clinically diagnosed acute appendicitis some practical guidelines have been suggested (1). Firstly if the clinical diagnosis is correct no further search in the abdomen should be undertaken and the operation terminated. Secondly if the appendix is normal there should be a search for further pathology and if any found, such as a Meckel’s Diverticulum, then it should be removed.

Some say that a wide mouthed diverticulum can be safely left in such cases unless there is palpable abnormality of the mucosa. This particular argument is not supported by a Swedish study (2) which showed symptomatic Meckel’s Diverticulae are longer and have wider mouths than asymptomatic ones. Diverticulae over 2 cm in length were seen to be more likely symptomatic in another study (3). Palpation for ectopic mucosa in a Meckel’s Diverticulum has been shown to be only approximately 50% accurate (2,3) which lends more weight to the view that all Meckel’s Diverticulae should be removed rather than left when operating for abdominal pain.

The question whether there is scientific evidence for prophylactic excision of Meckel’s Diverticulum should be addressed. Meckel himself stated that 25% of his diverticulae were symptomatic. This view has been used by surgeons in the past as justification to remove all those found incidentally. In two large retrospective studies (5, 6) this has not been found. Lifetime risk of having complications from a Meckel’s Diverticulum was calculated in both studies to be about 4% in patients up to 20 years of age, 2% up to 40 and approaching 0% in old age. The mortality from symptomatic Meckel’s Diverticulae has been reported as high as 10% (4) with a generally accepted average of 6-7% in other studies (4, 5).

The complication rates from excision of asymptomatic diverticulae are reported ranging from 1.2% to 8% (2,3,4,5,6,7). The most common complication is simple adhesive intestinal obstruction with few cases requiring further surgery. Bleeding from resection line, dehiscence and incisional hernia have also been reported. There was only one report of a single mortality directly attributable to prophylactic resection of a Meckel’s Diverticulum (2). Like this report, most smaller series record no mortality and little morbidity.

The overall feeling in the quoted studies which report some 900 cases (and in many other smaller studies not quoted) is that prophylactic excision of asymptomatic Meckel’s Diverticulae can only be justified to prevent complications in young patients. In those over 30 - 40 years of age the risk from complications from the resec-

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