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## “Wayside Houses of Ill-Repute” – Diverticular Disease of the Colon

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### Abstract

A diverticulum is simply a blind pouch and it can occur in any section of the alimentary tract; this article concentrates on those arising from the large bowel.

The question of how diverticulae are produced was for many years the subject of pure conjecture rather than of scientific proof. If we turn back the pages of medical journals over the past century, we see many shifts in the emphasis of man's efforts to elucidate the cause of acquired colonic diverticular disease. The current theory is that abnormal inter-haustral contractions of rings of thickened muscle result in the development of very high intra-colonic pressures in response to certain specific stimuli, the most important being morphine and prostigmine. By contrast, “probanthine” and atropine tend to abolish the pressures.

I must stress that basal pressures are similar in patients with diverticular disease and in normal controls. (This tends to refute any close casual relationship between the “spastic colon” and diverticular disease.) It is only in response to certain stimuli that the abnormal intraluminal pressures may be recorded.

One important practical point is that the above facts represent prima facie evidence against using morphine to alleviate the pain of acute diverticulitis.

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# “WAYSIDE HOUSES OF ILL-REPUTE”

## — DIVERTICULAR DISEASE OF THE COLON

By T. W. BALFOUR

*From a Dissertation delivered before the Royal Medical Society*

*on January 29th, 1965.*

A diverticulum is simply a blind pouch and it can occur in any section of the alimentary tract; this article concentrates on those arising from the large bowel.

The question of how diverticulae are produced was for many years the subject of pure conjecture rather than of scientific proof. If we turn back the pages of medical journals over the past century, we see many shifts in the emphasis of man's efforts to elucidate the cause of acquired colonic diverticular disease. The current theory is that abnormal inter-haustral contractions of rings of thickened muscle result in the development of very high intra-colonic pressures in response to certain specific stimuli, the most important being morphine and prostigmine. By contrast, “probanthine” and atropine tend to abolish the pressures.

I must stress that basal pressures are similar in patients with diverticular disease and in normal controls. (This tends to refute any close casual relationship between the “spastic colon” and diverticular disease.) It is *only in response to certain stimuli* that the abnormal intraluminal pressures may be recorded.

One important practical point is that the above facts represent *prima facie* evidence against using morphine to alleviate the pain of acute diverticulitis.

### *Pathology*

There is no muscle in the wall of an acquired diverticulum. This should be contrasted with the *congenital* type in which the wall is composed of all layers of the bowel—as for example in the solitary caecal diverticulum.

There is simple herniation of the mucosa through the circular muscle. Rarely, the protrusion may turn and dissect between the layers of muscle.

### *Incidence*

The disease is rarely seen before middle age — but it has been reported in a boy of 14 years. It is commonest in the sigmoid colon, and its incidence falls disto-proximally.

The geographical variation in incidence is significant, the disease being virtually unknown in, for example, the pure Indian population of the Peruvian Andes. It is also extremely rare within the Japanese and the Koreans. These 3 races all have a very low incidence of obesity and constipation (as compared with U.K. or U.S.A.); and their staple diet is of much higher residue.

Diverticular disease is increasing in most

Western communities. It is true that the oldest profession in the world may conduct business within wayside houses of ill repute; but diverticular disease is by no means the oldest disease of the colon. Its increasing incidence is due partly to an aging population, but also to the increasing sophistication of Western life and dietary habit.

## RADIOLOGICAL STAGING

This is a vital feature of the new approach to diverticular disease. Four stages are recognisable:—

1. *Prediverticulosis* — a radiological concept only, which cannot be recognised at operation or autopsy. The appearance on barium enema Examination is described as “ripple”, “palisade”, or “saw-tooth” according to the degree of development.

2. *Diverticulosis* — discrete flask shaped pulsion diverticula, often containing the crescentic shadow of a faecolith. No irregularity of contour seems to suggest inflammation.

3. *Diverticulitis* — specific diverticula with irregularity in certain segments of colon indicating inflammatory change. This stage is reached by only a few of the patients who exhibit “stage 2”. Stagnation has produced ulceration and bacterial invasion of the wall of the diverticulum.

4. *Peridiverticulitis* — a persistent filling defect, often radiologically indistinguishable from carcinoma, is present. Here the infection has passed beyond the wall of the inflamed diverticulum.

One important feature about this staging is that the enlightened physician of 1966 must appreciate that “prediverticulosis” is a disease entity which may be just as active as “diverticulitis”. It can, for example, in certain cases bleed more severely than diverticulitis.

It is useful to employ the term, “diverticular disease” as an umbrella with which to cover all stages and all clinical manifestations.

*Clinical Features* are widely discussed in any standard medical text-book. I will not dwell upon them. The commonest symptoms are pain, constipation or diarrhoea, bleeding, distension and obstruction.

The commonest findings are abdominal tenderness, an elevated E.S.R., a positive F.O.B., and a sigmoidoscopic appearance which excludes ulceration or neoplastic change.

## Natural History

Very little is known about the natural progression of diverticular disease. However, a recent study conducted at the Western General Hospital (Edinburgh) was designed to probe two of the many unanswered questions:—

1. Can the patient in whom the serious complications of diverticular disease will develop be identified at an early stage?

2. In particular, does the radiological nature of the disease afford us any clue as the course of the disease?

The detailed results of this study cannot be considered here, but the relevant conclusions are of importance. These are:

1. It still remains true that 70% of patients with diverticular disease will be maintained in good health by simple medical measures, or often in the complete absence of treatment.

2. There remains 30% of patients who will have further trouble; and the problem is to decide at an early stage of the disease and at an early age of the patient which individuals will fall into this group.

3. Radiological features do not represent infallible clues in the detection of this 30% who will develop complications of varying severity.

4. It seemed reasonable to suggest that patients with recurrent attacks or attacks associated with the signs and symptoms of inflammation should be submitted to early surgical resection in the hope of avoiding some of the highly dangerous complications.

By analogy to the “fair, fat, forty” female who is reputed to be exceptionally prone to gall bladder disease, it was evident after conducting the follow-up interviews that there exists a corresponding diverticular diathesis in the “short, stout, sixties or seventies”!

## TREATMENT

*Medical:* There are few maladies which receive more unnecessary treatment than diverticulosis. On the strength of a few pelvic diverticula innumerable patients are condemned to a strict and frustrating low-residue diet. It is true that dietary modification is usually advisable, but this should be directed mainly towards weight reduction; the “low residue” component need only be the avoidance of pips and skins of fruit and vegetables.

The other features of good medical management are:—

## COMPLICATIONS

- (a) Regular use of non-irritant laxatives — liquid paraffin, “milk of magnesia”, or “isogel”.
- (b) Occasional use of antispasmodics and antibiotics to quell recrudescences.

*Surgical*: Surgery has much to offer today in the treatment of diverticular disease; and the present trend is toward operation at an early stage. The ideal operation is a one stage resection with end-to-end anastomosis; but in the face of certain complications a temporary colostomy may have to be done—although it must be noted that a proximal diverting colostomy does not always prevent subsequent fistula formation, perforation or haemorrhage.

In certain cases of widespread involvement only 20 cms. of pelvic colon is resected. If the whole colon is removed, then the large bowel loses its important function as a collecting and dehydrating chamber.

### INDICATIONS FOR OPERATION

The old policy of watchful waiting is no longer tenable here. The pendulum of opinion is swinging towards earlier surgical operation in a younger, healthier patient before dangerous complications develop. This new policy has resulted in the establishment of a set of relatively rigid criteria which can be utilised as operative indications.

These are :—

*On History* :

- (1) Failed medical treatment — repeated attacks still occur.
- (2) Increasing severity of attacks, particularly in patient over 50 years old.
- (3) Pain and fever predominate in attacks. This suggests active inflammation.
- (4) Persistent bleeding per rectum, in absence of other causes and in presence of a normal clotting mechanism.
- (5) Urinary symptoms, particularly frequency and dysuria in the male, suggestive of early colovesical fistula.
- (6) Sub-acute obstruction.

Additional features in favour of operation would be :—

*On Physical Examination* :

- (1) Mass palpable
- (2) Marked tenderness.

*On X-Ray or Sigmoidoscopy* :

- (1) Persistent filling defect.
- (2) Unable to exclude carcinoma.

Herein lies the potential danger to your life once you have crossed the portal into a wayside house. It is not uncommon for the symptoms of early diverticular disease to be trivial or even completely absent until the stage of complications is reached. Such complications are :—

- (1) Obstruction (Acute or chronic in the small or large bowel).

There are four possible pathological processes by which obstruction may be effected —  
inflammatory mass  
abscess  
co-existing carcinoma  
adynamic ileus

- (2) *Perforation*

Local — Pericolic abscess  
Pelvic  
General — Faeculent Peritonitis, a highly fatal condition.

- (3) *Fistula* — External; Internal.

Diverticular disease is the commonest cause of vesico-colic fistula, which usually presents with frequency and dysuria; only rarely are the classical features found — that is, pneumaturia and strangury on defaecation.

- (4) Haemorrhage; as persistently positive faecal occult blood or as massive colonic haemorrhage — of which diverticular disease is now recognised as commonest cause.
- (5) *Portal Pyaemia* — metastatic abscesses. V.v.rare.
- (6) *Malignant Disease* often co-exists in the typical age group with which we are dealing. It is not a true complication of diverticular disease.

### CONCLUSIONS

This paper has dwelt upon the more challenging and interesting facets of diverticular disease — the natural history; the method of specific radiological staging; the indications for early surgical intervention.

Enthusiastic advocacy of early one-stage surgical resection must not blind us to the necessity for good medical treatment in many uncomplicated cases, nor to the advisability of multiple staged operative procedures in the face of certain complications.