Summary

After a fatty meal no increase in blood coagulability was found when techniques ensuring adequate platelet activity were employed. Fullerton's theory of the relation of alimentary lipaemia to the formation of atheroma and intravascular thrombosis is criticized in the light of these results.

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"STRAWBERRY LESION" OF THE RECTO-SIGMOID

BY

G. K. THOMAS, M.B., F.R.C.S.

*Surgical Registrar, Rochford General Hospital,
 Southend-on-Sea Group of Hospitals*

Recognition of "strawberry lesion" (Shera, 1953) of the recto-sigmoid is not widespread. The object of this review and a case report is to draw further attention to an interesting condition which has a specific treatment. It is due to an infection by *Spirochaeta vincenti* and *Bacillus fusiformis*. Shera designates the condition "primary spirochaetosis" when it appears on its own in the presence of vitamin-C deficiency and often hypochlorhydria, and "secondary spirochaetosis" when it follows dysentery, lambliaiasis, or neoplasms and when there is no lack of vitamin C. The condition may be acute, especially in children (Shera, 1953), or chronic, the latter being more usual.

Symptoms.—The presenting symptom is diarrhoea or, as in the case reported below, the passage of blood and mucus with the stools. The diarrhoea is usually persistent though relapsing (Shera, 1953), but may be acute, simulating cholera (Menon, 1947) with dehydration and collapse, though it must be added that in this and other cases reported by Menon (1945, 1954) the diagnosis was "gastro-intestinal fusospirochaetosis," the organisms being demonstrated in the stools, and it appears that none of his patients was examined with a sigmoidoscope. The blood streaks and is somewhat mixed with the stools; it is usually fresh or only slightly altered, so one avoids the term "melaena," which suggests a tarry stool. The blood loss is relatively small, but, being so often repeated, may lead to anaemia. Other symptoms which seem nearly always to be present are anorexia, indigestion, flatulence, borborygmi, intermittent abdominal distension, colicky abdominal pain, and some vomiting. Weight loss and lassitude are usual. Shera (1953) includes lassitude under "nervous signs"—shown by some patients—and adds undue sweating and mental depression. A history of or compatible with Vincent's infection in gums or tonsils may or may not be forthcoming.

Lesion.—The lesion, aptly designated "strawberry lesion," occurs most often at the recto-sigmoid junction or a few inches above or below, and consists of a fine granular proctitis or sigmoiditis. The mucosa is thickened and somewhat raised, with very superficial ulceration. As it progresses it becomes bathed with mucus and pus, and blood which oozes out of numerous pin-point areas, the whole giving an appearance of a dull-coloured, over-ripe strawberry. Whenever a sigmoidoscope touches the lesion, further oozing of blood is produced.

Incidence.—This is given by Shera (1953) as approximately one case every two months in the Eastbourne Hospital Group. Personally, since becoming aware of the condition, and now looking for it in a busy 70-bedded surgical unit doing its fair share of sigmoidoscopies, I have failed to find a second case up to the time of writing—a period of five months.

Diagnosis.—This is by the sigmoidoscope, and no case should be left labelled "non-specific ulcerative recto-sigmoiditis" without the diagnosis of "strawberry lesion" being borne in mind. Hypochlorhydria or achlorhydria is a pointer to the diagnosis. We did not find any vitamin-C deficiency; this may have been because the case was investigated after the summer, when the patient had certainly been eating fruit. It is recommended, however, that a vitamin-C saturation test be carried out. A swab from the lesion should be taken for Vincent's and fusiform organisms, as well as a routine gum swab.

Differential Diagnosis.—(1) Ulcerative colitis can be excluded by the site of the lesion, the bacteriology of its surface, and its failure to give a therapeutic response to a local arsenical. The procto-sigmoiditis of Brooke (1953), discussed under the heading of ulcerative colitis, is possibly the lesion being considered. (2) Aird (1949) mentioned the possibility of Crohn's disease affecting the recto-sigmoid only; but it must be exceedingly uncommon, and "Crohn himself does not sanction this extension of the entity to which we give his name" (Wells, 1952). It is possible, therefore, that this condition too may be an unrecognized "strawberry lesion." (3) Amoebic dysentery can be excluded by sigmoidoscopic examination and by the demonstration in the laboratory of the causative organism; failing that, by the therapeutic response to emetine. (4) Infections by the coli-typhi-dysentery group of organisms and *Vibrio cholerae* can be excluded by the laboratory. (5) Neoplasms can be excluded by sigmoidoscopy and barium enema.

Case Report

A married woman aged 50 was sent to the surgical outpatient department on February 22, 1955, for investigation of "melaena." She gave a history of having passed bright red blood and a little slime in her stools for the previous six weeks. The amount of blood passed was small but constant, and was somewhat mixed with the stools as well as being on their surface. She opened her bowels once a day, though more recently had occasionally done so twice a day. She also complained of having had indigestion for years, with a feeling of fullness in the lower chest and epigastrium, but no actual pain. There was occasional sudden vomiting immediately after deglutition. She also complained of flatulence and flatus, worse recently; borborygmi; occasional abdominal distension; and intolerance of certain foods—eggs, fats, cucumber, onions. Her appetite was only fair; her weight was steady, but recently she had experienced lassitude. She had had pleurisy 25 years ago, a nervous breakdown 15 years ago "due to business strain," but nothing else. She was never jaundiced.

On examination the patient looked fairly fit and of good colour; the tongue was moist; the lungs, heart, nervous system, breasts, and superficial gland areas were all normal. Her weight was 9 st. (57 kg.). The urine was normal; pulse 80, regular. Abdominal examination revealed no mass, distension, or guarding; the liver and spleen were impalpable. The only positive finding was a palpable and slightly tender descending colon. Rectal examination revealed a palpable sessile lesion on the posterior rectal wall extending round to the sides of the rectum. The upper limit was out of reach. The lesion felt firm but not hard.

On March 5 a sigmoidoscope was passed to 25 cm. The sigmoid mucosa appeared normal, though bathed with excess mucus. There was a granular area in the rectum 5 cm. in length, centred 8 cm. up from the anal margin, on the posterior rectal wall and extending somewhat to the left. Although the mucosa looked granular, there was no obvious break in its surface. There was no visible bleeding

or any tumour. A barium enema was given on March 8: "The large bowel filled easily with no obstruction. No abnormality seen proximal to the recto-sigmoid. Evacuation fairly complete. Some air was then introduced, and again no abnormality was detected." No active treatment seemed to be called for.

On June 28 the patient attended the out-patient department and complained that her initial symptoms had persisted until May 31—that is, for 20 weeks; since then she had developed diarrhoea—loose frequent motions four times a day—which had persisted intermittently since, her bowel habit never returning to normal and her stools always containing blood and mucus. She had developed colicky abdominal pains recently. Physical examination revealed findings identical to those of February 22. Sigmoidoscopic biopsy: "The mucosa shows marked plasma-cell infiltration with areas of diffuse polymorphonuclear infiltration. At a few points there are minute superficial ulcerations. No evidence of malignancy or specific inflammation." A diagnosis of "non-specific rectal ulceration" was made.

When seen in the out-patient department on July 19 the bleeding was worse. She had colicky pains, and diarrhoea with blood and mucus persisted.

On admission to hospital on August 8 the blood urea was 30 mg. per 100 ml. Blood count: Hb, 12.3 g./100 ml. (83%); white cells, 6,900 per c.mm. (polymorphs 42%, lymphocytes 58%). Film: "Red cells show slight anisocytosis. There is no evidence of macrocytosis. Platelets appear normal." On August 10 a repeat sigmoidoscopy showed the lesion to be situated as before but a little more extensive and much more active, with generalized blood ooze, pus, and mucus. It bled to touch. A small sessile protuberance in the centre of the lesion was biopsied. Report: "Small piece of rectal mucosa showing a moderate infiltration by plasma cells and eosinophils. No evidence of acute infection or malignancy." A barium meal and follow-through on August 16 showed no abnormality; there was no barium in the descending colon after 24 hours.

It was at this time that I read Dr. Shera's (1955) letter, when the true diagnosis was suggested. Further investigations gave the following results: (1) Fractional test meal (alcohol-histamine): "No free HCl." (2) Vitamin-C saturation test: "No evidence of vitamin-C deficiency." (3) Sigmoidoscopic swab of lesion: "Moderate numbers of fusiform bacilli seen. No definite spirochaete seen." (4) Mouth swab: "Direct smear: no Vincent's organisms seen. Culture: heavy growth of neisseria (giving sensitivities)." The patient was edentulous, with upper and lower dentures. Direct questioning now revealed that she had had many gumboils as a child and had suffered from spongy gums which had been painful intermittently until 1937, when, at the age of 33, they became very inflamed and bled noticeably on occasion. Her dentist advised, and performed, a staged total extraction for "pyorrhoea." After this, her sockets were purulent for a month but subsided with oral hygiene. She had had no trouble with her gums since.

Treatment

Shera (1953) states emphatically that acetarsol ("stovar-sol"), 0.25 g. orally twice daily for two 10-day courses, is specific, together with vitamin C. Menon (1954) reports a case of "secondary spirochaetosis" occurring in a medical officer following amoebic dysentery; relapses occurred a few years and two weeks respectively following courses of acetarsol orally, and he found penicillin tablets (50,000 units) orally more effective. It occurred to me that local treatment, to obtain a high concentration and reduce possible toxic effects, was very feasible in our case, especially as the lesion was within finger-reach. As the latest edition of Martindale (1952) states that carbarsone is both less toxic and more amoebicidal than acetarsol, it was decided to use "carbarsone suppositories." This method of treatment for "strawberry lesion" has not been used before, so far as is known (Eli Lilly & Co., personal communication). Two 10-day courses of carbarsone suppositories—2 gr. (0.13 g.)—

with a week's interval, were given, one suppository being inserted high up per rectum each evening. I should add that previously a 10-day course of phthalylsulphathiazole had been ineffective. Dilute HCl, 30 min. (1.8 ml.) three times a day, had been started 21 days previously; this by itself produced no change in the condition. Vitamin C was not given, there being no deficiency. It was not necessary to treat the gums in this case, as they were at the time healthy. In a case of "secondary spirochaetosis" suitable treatment should also be given for the primary lesion. Intravenous neosarsphenamine has a place in the treatment of very acute fuso-spirochaetosis (Menon, 1947).

Result and Follow-up

Whilst on treatment the patient noticed no difference for three days. On the fourth day the mucus ceased. On the fifth day the blood ceased, and the bowel habit changed dramatically to one watery motion in the morning (consisting principally of the dissolved suppository), and then one perfectly normal motion two to three hours later. Sigmoidoscopy after the first 10-day course showed: mucosa pink; no granularity; a few small and very superficial ulcers, practically healed. Sigmoidoscopy after the second course gave normal findings. Full liver-function tests before and after treatment showed no abnormality. The patient was discharged from hospital on October 7 symptom-free. Follow-up with sigmoidoscopy in the out-patient department on November 11 and January 14, 1956, showed that the patient was free of all symptoms, very well, and sign-free. She was discharged.

Discussion

While this case undoubtedly fits the description of "strawberry lesion," it may be argued that by not finding Vincent's spirochaete the diagnosis has not been proved. I submit that it was a case of fuso-spirochaetosis on the following evidence: (1) Moderate numbers of fusiform bacilli were seen. The spirochaetes may not be so much in evidence in a chronic case, and in any case can be difficult to demonstrate. (2) The appearance of the lesion sigmoidoscopically was typical. (3) The dramatic and apparently specific response to carbarsone, with complete cure not only of the local lesion but also of the classically allied symptoms. (4) The past history of chronic gum infection which *could* have been due to Vincent's infection.

The symptoms of diarrhoea with blood and mucus are easily understandable; the other symptoms appear to be due to a varying degree of recto-sigmoid obstruction, at least in the more common chronic case, together with reflex dyspepsia.

It is interesting that the condition would appear to confine itself to the recto-sigmoid region. Menon (1945) says that "the duodenum or upper jejunum seems to be the area commonly affected (by fuso-spirochaetosis)" without any definite evidence for this observation, and, as remarked previously, he seems to have omitted sigmoidoscopy in all his cases.

The condition does not appear to be well recognized. Aird (1949) does not mention it. Brooke (1954) gives a description of what is almost certainly the same condition without recognizing its nature. Cropper (1955) reviews 26 cases of "idiopathic granular proctitis" which could well be examples of the same condition. It is perhaps rather surprising that he did not appear to have examined the stools or to have taken a swab of the lesions he saw, in view of the fact that several of his cases had previously been diagnosed as dysentery. I disagree with him on the usefulness of phthalylsulphathiazole, and on "immediate return to the front line of (Service) patients with granular proctitis." His follow-up questionnaire shows only three or maybe four (? spontaneous) cures out of 26 cases.

It is not easy to explain how Vincent's organisms gain a portal of entry in an intact bowel mucosa. Secondary spirochaetosis is more easily understandable, the mucosa being damaged by the primary condition. In primary spirochaetosis, trauma by hard particles in the faeces may

play a part. Strong (1942) quotes Clements and James's view that dietary deficiency, especially in vitamin B₂, may play a part, while Shera (1953) blames a vitamin-C deficiency leading to bruising of the bowel.

Summary

The scanty literature on strawberry lesion of the recto-sigmoid has been reviewed. A case is presented to help clarify the confusion which arises when a patient is seen with "granular (or idiopathic) ulcerative recto-sigmoiditis." A plea is made for the diagnosis of "strawberry lesion" to be borne in mind, investigations to be carried out, and the therapeutic response to arsenicals to be tried. It is recommended that carbarsone suppositories be used as the method of treatment of choice for the usual chronic case affecting the recto-sigmoid.

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VALUE OF "HIBERNATION" IN SEVERELY SHOCKED PATIENTS

BY

SHEILA KENNY, M.B., F.F.A.R.C.S., D.A.

Anaesthetist, the Adelaide Hospital, Dublin

The use of the "hibernation" technique for major surgery in gravely ill patients was described by Gordon, Grant, and Grigor (1954), and in 1953 Nichol, Mattéi, Brun-Buisson, François, Jaffry, and Lagneau had reported its value in the treatment of shock in war injuries.

The appearance, within a period of 10 days, of three moribund patients requiring immediate operation, and the dramatic success following the use of the hibernation technique, has prompted this report. All three cases were in a state of advanced shock with marked peripheral vasoconstriction. There was no response to normal resuscitative measures, and operation under standard methods of anaesthesia carried grave risk. Hibernation, in blocking the sympathetic nervous system, relieved the vasoconstriction, improved cerebral and tissue oxygenation, aided fluid replacement without concomitant dangers, and provided ideal operating conditions.

Case 1

A man aged 60 was admitted to hospital complaining of severe abdominal pain for 12 hours. On examination he was found to have an imperceptible pulse, unrecordable blood pressure, and board-like rigidity of the abdomen. He was very cold and pale, and was sweating. Resuscitation with plasma and saline was at once carried out, being main-

tained for six hours without any signs of improvement. An L-noradrenaline bitartrate drip running for five minutes at 10 drops a minute produced no rise in blood pressure. A diagnosis of peritonitis following perforation of 18 hours' duration was made, and in view of the deterioration in the patient's condition it was decided to "hibernate" him and operate.

In the theatre two transfusions of blood were run in concurrently and 5 ml. of a hibernation mixture—chlorpromazine hydrochloride, 50 mg., promethazine hydrochloride, 50 mg., and pethidine, 100 mg., in 14 ml. of normal saline (the dilution suggested by Smith and Fairer)—was given very slowly. This allowed the blood to run more rapidly, and in five minutes the pulse was recordable. In 10 minutes, when 10 ml. of the mixture had been given, the patient became warm and pink, and a blood pressure of 50 mm. Hg was recorded. The remaining 10 ml. of the mixture was given within a further five minutes; the patient was intubated and moved to the operation table. His blood pressure was labile, and moving him caused an instant fall in blood pressure.

The operation was begun with the patient on a 50% mixture of N₂O and O₂, and 2 pints (1,140 ml.) of blood were running concurrently. The systolic blood pressure was now 85 mm. Hg. For opening the peritoneum a dose of 5 mg. of D-tubocurarine was necessary, and adequate. Irregularity of the pulse caused some anxiety, and 0.24 g. of aminophylline was added to a pint (570 ml.) of transfusion fluid. Digoxin, 0.25 mg., was given intravenously with obvious improvement. The blood pressure was maintained at 80–90 mm. Hg with the help of a fast-running transfusion. A large perforation at the pylorus was found, and 10 pints (5.7 litres) of fluid was sucked from the peritoneal cavity. There was marked generalized peritonitis. Routine closure of the perforation and abdomen was performed—his total time in the operating theatre being one hour.

The patient was kept under mild hibernation, chlorpromazine hydrochloride, 25 mg., and promethazine hydrochloride, 25 mg., once a day, for seven days. For the first 24 hours he was nursed without blankets, being covered by a sheet only. In the first 48 hours urinary secretion was very low and caused some anxiety, but its return to normal on the third day suggests that the trouble was due to the prolonged hypotension. A severe ileus developed on the second post-operative day; intermittent gastric suction and fluid and electrolyte replacement were continued for nine days. During this period his blood pressure was maintained at 120 mm. Hg by regulating the speed of fluid replacement. There was no rise of temperature at any time. He was discharged on the twentieth post-operative day in very good condition, and has made satisfactory progress.

Case 2

A man aged 82 was admitted to hospital in a collapsed condition with a history of four days' abdominal pain and faecal vomiting. His pulse was weak and irregular, and his blood pressure was 80/66. His colour was poor, and the skin cold and clammy. On examination of the abdomen a firm swelling was felt on the left side above the left inguinal ligament. He had a history of left inguinal hernia, but there was no evidence of strangulation. He had suffered from auricular fibrillation for four years. A Ryle's tube was passed with intermittent aspiration. Standard resuscitation was carried out for five hours with little improvement, and operation was considered to be essential and hibernation the method of choice.

The patient was brought to the theatre and 5 ml. of hibernation mixture was injected slowly. The blood pressure fell to 30 mm. Hg, and 2 pints (1,140 ml.) of blood was run in very fast concurrently, and within five minutes a blood pressure of 70 mm. Hg was recorded. When a total of 15 ml. of the mixture had been given it was possible to intubate the patient and to begin operation, the blood pressure being 80 mm. Hg. Anaesthesia was maintained with a 50% mixture of N₂O–O₂. No other agent was required. On opening the abdomen a considerable amount of pus was