Medical Memoranda

Subacute Bacterial Endocarditis Caused by *Str. haemolyticus* Group H

Subacute bacterial endocarditis has been studied in great detail, particularly since the introduction of penicillin therapy. The responsible organisms are usually those found in the upper respiratory tract, with *Streptococcus viridans* predominant (Niven and White, 1946; Cates and Christie, 1951), and it is generally agreed that the mouth and pharynx constitute the common sites from which the cardiac infection arises, often as a result of local trauma (Jones *et al.*, 1947).

The following case is typical in most respects, but, as the causative organism proved to be *Streptococcus haemolyticus* Group H it is thought to be worthy of record.

CASE REPORT

A female shop assistant aged 20 had a history of rheumatic fever in childhood. In March, 1951, she had a tooth extracted and within a few days felt tired and listless; her condition slowly deteriorated and she had been in bed with a swinging temperature for some four weeks before admission to hospital on April 28.

On examination she presented the usual signs of subacute bacterial endocarditis—namely, pyrexia, valvular lesions, Osler's nodes, and an enlarged spleen. Blood cultures were made on April 28 and 29 and yielded a growth of *Str. haemolyticus* (approximately 200 colonies per ml.). This organism proved to be sensitive to penicillin, streptomycin, aureomycin, and chloramphenicol. Beta haemolysis was persistently produced on blood-agar plates, and, as a reaction was not obtained with the usual type sera, it was sent to the Colindale Reference Library, where it was found to be *Str. haemolyticus* Group H.

A routine course of penicillin (2,000,000 daily for 42 days) was begun on April 29, and the clinical result was very satisfactory; blood cultures prepared during and after the course were sterile.

COMMENT

This appears to be the first case of subacute bacterial endocarditis in which *Str. haemolyticus* Group H has proved to be the responsible organism. Porterfield (1950) carried out a comprehensive investigation of a number of streptococci isolated from cases of subacute bacterial endocarditis and found that some strains, although non-haemolytic, gave the same biochemical and serological reactions as *Str. haemolyticus* Group H. He consequently thought that these strains were non-haemolytic or *viridans* varieties of Lancefield Group H. He also demonstrated that these organisms were similar to *Streptococcus sanguis* (s.b.e.) type 1, which had been isolated from endocarditis cases and described in detail by White and Niven (1946). It is interesting to note that Loewe and his colleagues (1946) reported that, although *Str. s.b.e* strains were sensitive *in vitro* to penicillin, the clinical response to penicillin therapy tended to be unsatisfactory in endocarditis cases caused by these organisms.

Group H *Str. haemolyticus* was originally isolated by Hare (1935) from the throats of normal individuals, and later (Hare and Maxted, 1935) from faeces; he then thought it improbable that these strains ever caused serious human infections. Although giving complete haemolysis on blood-agar plates, a soluble haemolysis was not formed, and Hare believed that Group H strains might have been the same as some of the strains described earlier as pseudo-haemolytic streptococci. It is now accepted as a non-pathogenic member of the upper respiratory flora (Wilson and Miles, 1946; Swift, 1948). *Str. haemolyticus* Group H thus occupies a role comparable with *Str. viridans*, which is the organism most often responsible for subacute bacterial endocarditis.

In the above case several unsuccessful attempts were made to isolate Group H haemolytic strains from the gums, throat, and nasopharynx of the patient, but unfortunately these efforts were not started until the late stages of penicillin therapy. It does, however, seem highly probable that the organisms gained entrance into the blood stream at the time of the tooth extraction and then settled on the heart valves previously damaged by rheumatic fever.

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Carcinoma of Cardiac Portion of the Stomach

Carcinoma of the stomach is a gloomy disease. There is no doubt that so few cases are truly operable when first seen because symptoms are slight or absent until the disease is advanced. Barium meal x-ray examination and gastroscopy are most useful in carcinoma of the body or pylorus. In carcinoma of the cardiac end, gastroscopy and oesophagoscopy are of little use. A barium meal is not seen at its best here either. It may not be possible to visualize a growth in this area, but, lest it be thought that the diagnosis is too difficult, I should add that this is the area most likely to produce symptoms. The nearer the growth is to the cardiac orifice the more likely is the patient to complain of difficulty in swallowing. It may not be very severe or apparently present all the time, nor may it be in the so-called cancer age group, but despite this it may be the first symptom of a carcinoma.

During 1950 I operated upon 16 cases of carcinoma of the stomach—seven were of the cardiac end and are discussed in detail, and nine were of the body and pylorus, three being operable.

CASE REPORTS

Case I.—A married woman aged 34 attended the out-patient department in December, 1949, with a three-months history of dysphagia and pain when she swallowed solids but not liquids. Otherwise she was quite well. Barium meal: Diagnosis of cardiospasm. Hb, 64%. Belladonna and other antispasmodics gave no relief. I saw her late in January, 1950, and was struck by the pain and loss of weight; but there were no signs on examination. She was admitted on March 20 and oesophagoscopy was performed on March 22. Nothing definite was detected, but as the mercury bougie would not go down she was x-rayed again and an apparently typical cardiospasm was seen as before. Despite this her condition worsened and laparotomy was decided upon; her condition was desperate. At laparotomy on April 12 a large growth was found at the cardia, possibly oesophageal; there were no secondaries. She was quite unfit for anything except a jejunostomy, which was performed. She improved greatly. On May 3 a transthoracic approach was made: the growth still appeared to be mainly oesophageal. A combined incision in abdomen and thorax was made, splitting the diaphragm, and most of the stomach and the lower 2 in. (5 cm.) of oesophagus were removed. Direct anastomosis in

the chest was performed, and the chest closed without drainage. Uninterrupted recovery. Jejunostomy tube removed on May 15; closed May 20. Discharged May 22. When last seen she was well and enjoying food. Pathological report: adenocarcinoma of cardiac orifice; no secondary deposits found in distant glands.

Case 2.—A man aged 66 was seen in the out-patient department on April 1, 1950, complaining of epigastric pain and flatulence for four years, and loss of weight, difficulty in swallowing, phlegm, and chronic cough for one year. He was admitted on May 8. A barium meal showed carcinoma of fundus of stomach. At operation on May 10 a large tumour was found arising from lesser curve just below the cardiac orifice; no secondaries. Left lobe of liver mobilized and total gastrectomy, including spleen, performed from below diaphragm. Direct oesophago-jejunostomy performed and also jejunostomy. Getting on very well. Swallowing semi-solids until May 16, when he collapsed and died. Post-mortem report: massive pulmonary embolus; no secondaries; operation site entirely satisfactory. Pathological report: adenocarcinoma of stomach.

Case 3.—This patient, aged 22, had a crust of bread stick in the gullet on December 25, 1949. Pain at lower end of sternum was relieved by a drink. This had occurred once before, so on January 11 a barium-meal examination was made. It showed spasm at cardiac end of stomach, ? small ulcer present. Now appeared quite well. On March 8 a barium meal was practically normal; no symptoms. Later this month further sticking of food occurred, which got worse. After admission on May 22 an urgent barium-meal showed filling defect at cardia. Laparotomy on June 13 revealed an inoperable growth of cardiac end of stomach with massive local spread. The patient died on July 31, despite use of H 11. Pathological report: omental secondary; spheroidal-cell carcinoma. Post-mortem report: probably not carcinoma, but fibrosarcoma.

Case 4.—This patient, aged 35, complained of pain on swallowing in September, 1949, and was treated elsewhere for ulcer of larynx. Gradually increasing difficulty in swallowing occurred, with loss of weight, pain, and sweating at night. On admission to a medical ward on May 1, 1950, the patient was thin and ill. There was no occult blood. The Hb was 78%. An x-ray film showed a large filling defect of lower end of oesophagus. Oesophagoscopy revealed no definite new growth. Radiotherapy had little effect. Nocturnal temperature and pain persisted. Although it seemed hopeless thoracotomy was performed on August 15. It revealed pleural effusion, glands in hilum of lung, a growth apparently from stomach, not oesophagus, quite inoperable, invading diaphragm and liver. The patient died on September 11. Post-mortem report: adenocarcinoma of stomach; massive secondary growths in liver and elsewhere; the latter secondaries presumably accounted for the persistent nocturnal temperature.

Case 5.—The patient, aged 35, was admitted to a medical ward on July 27, 1950, complaining of retrosternal pain and regurgitation of food for three months. At first the pain was slight, but got worse and was followed by vomiting. The patient lost 2 st. (12.7 kg.) in weight and on admission could swallow only liquids. Examination revealed extreme wasting but no other signs. An x-ray film showed no growth at cardia but some delay. I saw the patient on August 9 and laparotomy was performed the same day. Carcinoma of the cardiac orifice was present; no apparent secondaries; fit only for a jejunostomy. By August 22 the condition had greatly improved so further operation was justified. A combined thoracic and abdominal approach, splitting diaphragm, was made. The growth was very adherent, but the whole of the stomach and spleen and part of the diaphragm were removed in one piece. The right pleura must have been accidentally opened, as a tension pneumothorax developed and the heart stopped. This was overcome by packing the wound deeply, aspiration of the chest, and cardiac massage. The operation was then quickly completed as in Case 1. The patient was fairly well but did not regain

consciousness, and died next morning. Post-mortem report: poorly differentiated adenocarcinoma of stomach; considerable direct spread; secondary deposit in ovary; suture line was not entirely satisfactory.

Case 6.—The patient, aged 72, was admitted on October 18, 1950, complaining of loss of weight, weakness, and breathlessness. The appetite was poor; there was no vomiting. Food and alkalis gave relief. On examination the patient was pale, with poor air entry to chest; normal abdomen; Hb, 40%; no free acid. A barium meal showed no evidence of new growth in stomach. Laparotomy revealed an inoperable carcinoma involving the upper third of the stomach; direct spread posteriorly; many secondary deposits. Pathological report on secondary nodule removed: adenocarcinoma, probably from stomach. The patient was discharged home on December 3.

Case 7.—A woman aged 44 was admitted to a medical ward on October 18, 1950, complaining of pain in the chest and epigastrium for four months, loss of appetite for six weeks, and occasional vomiting of watery froth. No relief from alkalis. Examination showed gross anaemia and loss of weight—she had weighed 18 st. (114.3 kg.) and had lost 4–5 st. (25.4–31.8 kg.)—abdomen, no mass felt. Occult blood ++; Hb, 34%; test meal, normal acid curve; barium meal, N.A.D. At laparotomy on December 13 an enormous tumour arising from the cardia was seen. It was apparently operable, so the incision was converted to a combined thoraco-abdominal one, splitting the diaphragm. Total gastrectomy, including spleen and part of pancreas, oesophago-jejunostomy, entero-anastomosis, and jejunostomy were performed. Operation specimen: large growth but little ulceration. The patient made an uninterrupted recovery and was discharged on January 6, 1951. Her haemoglobin was 90%, she was eating a normal diet, but had no appetite. Pathological report: anaplastic undifferentiated carcinoma of stomach; invasion of lymphatic nodes present.

DISCUSSION

The youth of the patients is notable. Out of seven, one was aged 22, three were in the thirties, and one was in the forties. This, coupled with the one prevailing symptom—difficulty in swallowing—makes one's mind run to cardiospasm. Provided one thinks of carcinoma as a likely cause of difficulty in swallowing at any age the main danger is ruled out. Vomiting is not so characteristic as in cardiospasm, but wasting and particularly anaemia are more marked. Occult blood may be negative in carcinoma and the fractional test meal may show a good acid curve, so that these findings are not helpful if normal.

This is the most difficult type of growth to visualize radiographically, and attempts to do so must include pictures in the Trendelenburg position and may include the giving of a Seidlitz powder to produce gas in the stomach. Even so, an apparently normal picture may be produced. This is bad enough if the oesophagus does not appear dilated, but it may be made worse by having the characteristic goblet dilatation of cardiospasm. If such a case does not show temporary relief by amyl nitrite it must be suspect. Classically, the dilatation is greater in cardiospasm, but it is dangerous to rely on this alone. I have not found cardiospasm as common as carcinoma, but innocent stricture may occur. Both should show relief by dilatation with bougies. Temporary spasm may also occur from a small peptic ulcer just above or below the cardiac orifice; these should clear up quickly, and if they do not must be suspected of being malignant. When in doubt, surgical exploration is the correct procedure. While a one-stage operation is ideal, if it had been attempted in Case 1 or Case 5 there could have been only one result. Jejunostomy was here a life-saving measure. I also think it wise after a one-stage operation as in Case 7, as it allows immediate nutrition in these starving people without the worry of the anastomosis. I found that the Witzel type worked well and gave no trouble.

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