remission following dietetic and/or parenteral liver therapy occurred in 69.4% of these cases and definite relapse in 16.1%, nearly all of whom first relapsed during transit to England.

A brief review of the effective factors of treatment is given and the action of parenteral liver therapy analysed.

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Medical Memoranda

A Case of Thrombophlebitis Migrans

The following case report may be of interest because it draws attention to the association of thrombophlebitis migrans with neoplasm, and because of an unusual event simulating an arterial block which occurred late in the illness.

CASE REPORT

A married shorthand-typist aged 25 was admitted to the hospital on April 16, 1948, with a three-weeks history of pain in the right side of the chest, an irritating dry cough, and increasing dyspnoea. In the past she had had bronchitis.

On examination she was febrile—100° F. (37.8° C.)—and was found to have a right pleural effusion with displacement of the mediastinum to the left. There was no clubbing of the fingers or evident enlargement of glands. A blood count showed: haemoglobin, 14.2 g. (96%); white cells, 12,300 (polymorphs 77%, lymphocytes 15%). The erythrocyte sedimentation rate was 6 mm. in one hour. The sputum showed mixed organisms, and β haemolytic streptococci in culture. Tubercle bacilli were not seen. An x-ray film confirmed the presence of fluid but was otherwise unhelpful. Pleural tap produced clear fluid, mainly lymphocytic, with some endothelial cells and an occasional polymorph. Culture was sterile. A provisional diagnosis of tuberculous effusion was made.

Owing to increasing dyspnoea, fluid was withdrawn from the chest on April 26 and 29 and May 4, 7, 12, and 14, always from the right side, although the effusion was bilateral by May 14. The specimen taken that day contained a fair number of red cells and 15% of endothelial cells.

On April 22 the patient developed pain in the right calf, thrombosis of the saphenous and femoral veins becoming complete over the next four days. Then thrombosis was detected in the left calf, and two days later there was swelling of the right arm, with pain over the right side of the chest, and haemoptysis, followed the next day by thrombosis in the left antecubital fossa. In view of the migrating form of the thrombosis a neoplasm in the chest was considered likely, but could not be demonstrated.

During the next week there was considerable improvement in the swelling of the legs; but a week later thrombosis of the right external jugular veins occurred, and after another week thrombosis of the innominate vein with dilatation of the veins over the front and back of the upper part of the chest.

On May 18 she complained of pain in the right hand, which was found to be blue and cold from the lower third of the forearm. No arterial pulsation could be felt with certainty below the axilla. There were no objective sensory changes over the affected hand or wrist. An arterial block was diagnosed, but embolectomy was out of the question, and the patient died some seven hours later.

Necropsy.—The principal findings were: (1) Bilateral pleural effusions and pericardial effusion. (2) A primary growth 1 cm. in diameter with a necrotic centre was growing from a minor bronchus of the right middle lobe of the lung. It was anaplastic, being partly spheroidal and partly squamous. (3) Multiple small nodules of growth were found in the parietal pleura and in the visceral surface of the pericardium. (4) Metastases were also found in the liver, both suprarenals, the left ovary, the head of the left femur, the lower deep cervical, paratracheal, mediastinal, and para-aortic glands, and the lymphatics of the pericardium and myocardium. (5) The superficial veins of the thorax were thrombosed, as were the jugular, the innominate, the vena azygos, and the main branches of the pulmonary veins. There was a large ante-mortem thrombus protruding from the superior vena cava into the right auricle of the heart. (6) Ante-mortem thrombus was also found in the axillary, brachial, and antecubital veins on the left, and also for about 1 in. (2.5 cm.) in the left femoral vein beneath the inguinal ligament. (7) The left axillary-brachial-radial artery was patent throughout its entire length and there was no evidence of embolus in it. (8) There was a very

small patent foramen ovale. (The skull was not opened, and other veins were not observed).

DISCUSSION

Two points of minor interest are: the youth of the patient—she was only 25—and the silent onset and rapid dissemination of the growth; for, apart from a recent bronchitis, from which she had made a complete recovery with a clear x-ray picture, she had been well.

The likelihood of a bronchial carcinoma being the primary cause of the pleural effusion was suggested by the onset of thrombophlebitis migrans, and was of course confirmed at necropsy.

Finally there was the occurrence of what appeared to be an arterial block in the left brachial artery, as evidenced by a cold, blue, painful hand and wrist, with a vague line of demarcation and absent arterial pulsation. It was debated at the time whether the block was due to an embolus from the lung or through a patent foramen, or whether it was due to an extension of the infected process to the artery wall from the neighbouring thrombosed vein. However, at necropsy no obstruction to the artery was demonstrable, nor could anything be found to account for this terminal episode.

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Otitis Externa Granulosa

The presence of granulations within the external auditory meatus is usually regarded as indicative of chronic suppurative otitis media, and this disease is in fact the commonest cause of their formation. It seems less well known that such granulations may be found in the presence of an intact drumhead and normal middle ear.

Clark (1946) described a granulomatous type of purulent otitis externa which he had seen when in charge of a British Army E.N.T. centre in India. He reported "a sessile plaque attached to the outer surface of the drumhead itself, or small pedunculated masses arising from the meatal walls." Moffett (1943), also from India, described and illustrated cases of "granulating myringitis," but he emphasized that in this condition no diffuse external ear inflammation was present. He did, however, state that "granulations in the external auditory meatus associated with various types of otitis externa are by no means uncommon."

While Command otologist for Austria (and for part of the time for North Italy as well) over a 12-months period I observed 13 cases of otitis externa granulosa. During the same period I saw 118 cases of otitis externa *without* granulations and 82 cases of chronic otitis media. (Cases of chronic otitis media with otitis externa *secondary* to the middle-ear discharge have been recorded only under chronic otitis media. Cases of furunculosis occurring *without* a pre-existing otitis externa have been excluded. Cases of otitis externa confined to the pinna were often dealt with by the dermatologist and have also been excluded. The term "chronic otitis media" has been used comprehensively to include long-standing chronic suppurative otitis media and cases of "old dry perforations" that had become reinfected.)

Most of my cases, in all three groups, were seen during the hot weather, and an association with swimming generally seemed to be aetiological significant. The cases with otitis externa granulosa were usually those in which the cutaneous inflammation was especially severe or neglected and in which there was a foul-smelling purulent discharge. Such a case was very likely to be diagnosed and treated as C.S.O.M. by the unwary.

The granulations in my cases were more often of the pedunculated type, arising from any part of the deep meatus and only in the minority of cases having attachment to the drumhead. Three of my 13 cases were associated with a meatal furuncle. No cases of Moffett's "granulating myringitis" were seen.

The differential diagnosis from chronic otitis media was made by cleaning with wool mops (using olive or arachis oil) and the gentle removal of granulations with aural crocodile forceps. One could then see (though perhaps not till the second or third treatment) an intact drumhead with normal landmarks. The externa cases responded to cleansing much quicker than cases

of chronic otitis media with granulations. Another point was that the odour of the pus in some cases early raised a suspicion that one was dealing with an entirely external otitis. Also the transmitted pulsation often seen on observing the pus coming from a middle ear is absent in a purely cutaneous suppuration. The presence of mucus in the discharge sometimes indicated that there was a middle-ear infection before the perforation could be seen.

A variety of C.S.O.M. that one must be very careful not to confuse with otitis externa granulosa is that with granulations protruding from an attic perforation or from a meatal fistula. One can diagnose the latter by noting that the discharge comes from a fistula or attic perforation on using Siegle's speculum. Gentle use of a probe will confirm this.

Much has been written on the subject of treatment of otitis externa, and I do not intend to enter into details. In my cases I became convinced that by far the most important thing was gentle but thorough daily cleansing of the meatus. But granulations, when present, were removed with crocodile forceps, and occasionally use was made of a silver nitrate bead fused on to a probe. This alone rapidly cured most cases.

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NOTE.—Since the submission of this paper Johnston (1948) has written an excellent article on ear conditions, including otitis externa granulosa.

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Pre-pubertal Gonococcal Peritonitis

Peritonitis and salpingitis are rare complications of gonorrhoeal infection in female children (Bidwell, 1904; Hamilton, 1910; Koplik, 1910; Fraser, 1923; McLachlan, 1947). Few case reports have been published (Comby, 1901; Dowd, 1902; Hunner and Harris, 1902; Bidwell, 1904; Carpenter, 1904; Welt-Kakels, 1904), and statistics regarding incidence are difficult to obtain, but most would agree with McLachlan (1948, personal communication) that there is peritoneal involvement in about 1%. The following is the report of a case in which unilateral tubal involvement following an untreated gonococcal vulvo-vaginitis of short duration simulated acute appendicitis so closely that laparotomy was indicated.

CASE REPORT

A girl aged 7 was brought to the casualty department by her mother on April 27, 1948, with the complaints of vulval soreness which had begun twenty-four hours previously, abdominal pain of twelve hours' duration, and dysuria for three days. The mother had noticed that the child had a vaginal discharge at the time of complaining of dysuria; vomiting had occurred twice shortly before being brought to hospital. The bowels had been acting regularly. The mother denied having any symptoms, and stated that her husband was also healthy.

On examination the child appeared toxic. The face was flushed, the tongue furred and dry. The temperature was 101.8° F. (38.8° C.) and pulse rate 140. On abdominal examination, limitation of respiratory movement affecting the lower abdomen was seen and general abdominal pain complained of, but on palpation the maximum tenderness and rigidity were localized in the right iliac fossa. Inspection in the lithotomy position revealed a red, oedematous vulva, purulent vulvo-vaginal discharge, and redness of the vagina and urethral meatus. A film of the discharge showed pus cells and scanty Gram-negative intracellular diplococci morphologically indistinguishable from gonococci. Culture confirmed that this organism was *Neisseria gonorrhoeae*.

A diagnosis of acute peritonitis was made; but, as appendicitis could not be excluded because of the major localization of pain in the right iliac fossa and a rising pulse rate, further examination under general anaesthesia, and possible laparotomy, were advised.

Under nitrous-oxide-oxygen-ether anaesthesia no abnormality could be felt in the right iliac fossa. Examination of the cervix by means of a small Ferguson-type speculum showed marked injection of the vaginal portion but no obvious discharge from the cervical canal. This suggested appendicitis rather than the rarer gonococcal salpingitis as the cause of symptoms. The abdomen was therefore opened through a right paramedian incision. A small amount of turbid odourless free fluid was found in the pelvis. In the right

iliac fossa the caecum and small bowel showed some patches of exudate and congestion. The right Fallopian tube was thickened and distended with purulent material, which was leaking from the fimbriated extremity. Bacteriological examination of this exudate showed numerous pus cells and typical Gram-negative diplococci, but no growth was obtained on culture. The left tube and ovary were normal, as was the appendix, which was not removed. The wound was closed in layers without drainage after a suspension of penicillin solution (500,000 units in 10 ml. of normal saline) had been introduced into the peritoneal cavity.

Convalescence was uneventful after the institution of a course of penicillin-sulphamezathine therapy, the child being discharged on the fifteenth day with a well-healed wound and no genito-urinary symptoms. Repeated examinations during convalescence and subsequently have shown no clinical or bacteriological sign of relapse.

Both parents were examined for gonorrhoea, with negative results; the epidemiological aspects could not, however, be satisfactorily completed, as the child had been on holiday some distance from home and it was impossible to trace contacts. As no history of interference was elicited, the inference was "accidental infection."

COMMENT

In the published reports the reason most often given for laparotomy has been the difficulty of accurate differentiation between acute appendicitis and salpingitis. Bloch *et al.* (1938) state that since Hatfield's case in 1886, 56 cases had been reported up to 1938, and in 20 of these laparotomy was performed because of incorrect or uncertain diagnosis. Notes (1938) added 16 cases of his own, in none of which did he perform laparotomy. Weill-Hallé *et al.* (1940) reported a further case treated successfully with sulphapyridine. A comprehensive summary of the condition is provided by Norris (1913) and by Maguire (1944), who stress the difficulty of excluding appendicitis as the cause of peritoneal signs and symptoms. The latter adds two cases, and mentions another of interest in which appendicitis was misdiagnosed as gonococcal peritonitis, principally because of the presence of leucorrhoea, and treated conservatively for four days before the need for laparotomy became evident.

In the case reported by us the possibility of the symptoms being due to gonococcal salpingitis was fully realized. The history, the localization of the abdominal findings, and the lack of cervical discharge made it impossible to exclude appendicitis completely. A therapeutic test with penicillin was considered, but, with a rising pulse rate, the delay of even a few hours which would have been prejudicial in a case of acute appendicitis seemed a contraindication to conservative treatment.

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The U.S. medicinal chemicals industry manufactured £50,420,000 worth of drugs and other medical products during 1947, according to a report just compiled by the Bureau of the Census of the U.S. Department of Commerce. This represents an increase of 860% over the output for 1939, when the last census was taken. This phenomenal growth is partly due to the discovery of penicillin and other antibiotics and the increased use of other medical products, such as vitamins. The average number of workers in the industry for 1947 was 9,414 as compared with 1,802 in 1939, wages were 12 times larger than in 1939, and the total expenditure for new plant and equipment during the year totalled £3,375,000.—*B.U.P.*