From a clinical aspect three contributory factors were present: (1) the toxaemia, (2) the low-protein diet, and (3) the use of trichlorethylene.

The *toxaemia* was slight and could not account for the severe damage found in the liver cells. It may have been the initial lesion.

Low-protein Diet.—The patient was advised to avoid meat and fish for about two weeks before she was admitted to hospital. As she was not under observation during this period the actual diet is not known. Experimentally, Glynn and Himsworth have produced massive necrosis of the liver by feeding rats on a diet deficient in proteins. It is also worth while noting that before the war of 1914-18 massive necrosis of the liver was a rarity in Central Europe (Strümpell, 1921), while during that war and for some years afterwards its incidence increased owing, it was believed, to the general malnutrition. It was commoner among women than men, largely because of the number of cases occurring in pregnancy. The protein requirements of pregnant women are higher than those of the non-pregnant, particularly because of the needs of the foetus in the later weeks of pregnancy. Digestive disturbance, poor appetite, and sometimes faulty absorption all contribute to the development of deficiency and liver destruction.

Against these two aetiological factors many thousands of women with a greater degree of toxaemia have been treated with a more restricted diet for a longer period without such a catastrophe as occurred in this case happening.

With regard to *trichlorethylene*, the patient had a small quantity of this chlorinated hydrocarbon in the second stage of labour. A Freedman inhaler was used. The amount was not enough to produce unconsciousness. The quantity was not estimated exactly, but it was certainly less than half a drachm. The drug is not very volatile, but it is unlikely that an overdose could have been obtained during inhalation through air. Trichlorethylene has been administered by the closed method to many thousands of cases, and liver damage is not mentioned in these reports (Carden, 1944; Gordon and Shackleton, 1943; Haworth and Duff, 1943; Hewer, 1943; Hunter, 1944). It has been administered through air to a large number of women in labour and, so far, no case of liver damage has been reported (Freedman, 1943; Calvert, 1944). Trichlorethylene is known to produce liver damage much more rarely than chloroform. Liver damage due to trichlorethylene in humans has been reported by Willcox (1931), Roholm (1933), and Vallée and Leclercq (1935), and in animals by Herzberg (1934), Meyer (1929), and Castellino (1932).

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At a General Court of the Governors of St. Thomas's Hospital held in London on May 23 an interim report on the reconstruction of the hospital was submitted. St. Thomas's received direct hits on different dates by twelve high-explosive bombs, including one flying bomb, and by a number of incendiaries. The chairman of the reconstruction panel, Mr. H. Winterbotham, said that the interim scheme was designed to cover the period between the end of the war in Europe and the final reconstruction of St. Thomas's. It contemplated the provision of 550 beds in London for in-patients, with facilities for an out-patient department comparable to the pre-war accommodation. Service on this basis was thought to be the minimum needed to maintain the educational standard and the standard of treatment at a proper level. Major Patrick Kinnaird, one of the joint treasurers of the hospital, said that the aim was to have ultimately 1,000 beds compared with the previous maximum of 630. The Lord Mayor of London, who was present at the meeting, emphasized the need to make widely known the prospective deficit of between £30,000 and £40,000, which would have to be made good.

MUMPS MENINGO-ENCEPHALITIS AND ORCHITIS

BY

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AND

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The following case of mumps with meningo-encephalitis and orchitis, which presents some unusual findings, is considered worthy of record. Meningo-encephalitis occurs occasionally as a sequel of mumps, and cases have been described in which meningo-encephalitis either preceded or was the only manifestation of mumps (Howard, 1919; Bedingfield, 1927). Coe (1945) described a case in which meningitis, orchitis, and arthralgia occurred without parotitis. Harris and Bethell (1938) report one case with meningitis and orchitis but no parotitis. They stress the fact that parotitis is only a common complication of mumps and not an essential feature of the disease. Frankland (1941) describes an epidemic of mumps among soldiers in which meningitis was observed without parotitis or orchitis.

Case Report

A soldier aged 26 was admitted to the medical unit of an E.M.S. hospital on March 25, 1944. His illness began on March 23 with a sharp pain in the right lower abdomen, accompanied by pain in the right testicle and slight frontal headache. The abdominal pain was severe enough to keep him awake all night, and by the next morning it had increased further in intensity. At this time his headache was also worse and he complained of giddiness and drowsiness. These symptoms persisted throughout the day, and nausea and mental confusion also appeared. The temperature during the first two days of his illness varied between 103 and 105.2° F. The pulse rate varied between 82 and 90. The personal and family histories were not relevant.

Examination revealed a well-built man who was flushed and mentally confused. Photophobia was present. All tendon and superficial reflexes were exaggerated. The plantar reflexes were extensor. There was a moderate degree of neck rigidity, and Kernig's sign was positive. Ophthalmoscopic examination revealed a moderate degree of bilateral papilloedema. No other abnormalities were observed in the central nervous system. There was slight tenderness in the right lower quadrant of the abdomen and a mild right-sided orchitis was present. There was no lymphadenopathy or splenomegaly. Clinical examination of the heart and lungs was negative, and radiographs of chest and skull revealed no abnormalities. B.P. 115/65.

Laboratory Investigations.—The urine contained a trace of albumin but no sugar. Microscopical examination was negative and culture was sterile. The C.S.F. was clear and contained 9 lymphocytes per c.mm. No excess of globulin was present and the Kahn reaction was negative. Protein, 20 mg. per 100 c.cm.; sugar, 90 mg. per 100 c.cm.; chlorides, 729 mg. per 100 c.cm. Culture was sterile. Culture and animal inoculation for *M. tuberculosis* gave negative results. Blood culture sterile. Widal reaction, negative. Blood Wassermann, Kahn, and gonococcal complement-fixation tests all negative. B.S.R. (Westergren) 20 mm. in first hour. Blood counts showed:

	R.B.C.	Hb	W.B.C.	Neutrophils	Lymphs.	Monos.	Basophils
25/3/44			15,000	84%	11%	5%	—
26/3/44	6·25 m.	100%	10,400	78%	14%	7%	1%
3/4/44		100%	8,600	53%	43%	3%	1%

Progress.—By March 26 the orchitis was more severe, and in view of this and the clinical evidence of meningo-encephalitis, the patient was questioned more closely as to any recent parotid swelling. He then recalled that he had observed slight swelling of the left side of the face and pain on opening his mouth wide three days before the onset of orchitis. The facial swelling and pain had disappeared within 24 hours. Although his orchitis had become more severe, neck rigidity and Kernig's sign were no longer present; he was mentally much clearer, and headache and photophobia were less pronounced. The plantar responses were still extensor, and in the evening of March 26 he developed quick involuntary twitching of the facial muscles. The next day there was great improvement; temperature was normal, and headache and photophobia had disappeared completely. The plantar reflexes were flexor and the papilloedema was clearing. Thereafter he made an uninterrupted recovery, and by April 5 there was no evidence of orchitis and the papilloedema had gone. A further lumbar puncture was done on

March 28. The C.S.F. was then clear and the cell count 3 lymphocytes per c.mm.; protein, 20 mg. per 100 c.cm.

Apart from the usual nursing measures, the only treatment was a course of sulphadiazine starting on March 24 and finishing on March 27, a total of 21 g. being given.

Commentary

In this case an almost latent parotitis was followed three days later by a fairly severe orchitis, 36 hours after which meningo-encephalitis manifested itself. The unusual features were the low C.S.F. cell count, the rather high sugar, and the presence of papilloedema. The mental confusion, drowsiness, twitching of the facial muscles, and the C.S.F. findings indicated an encephalitis. The clinical evidence of cerebral and meningeal involvement would suggest much more extensive changes in the C.S.F. than were actually found. The cell count was only slightly raised and the protein was normal. In the case described by Coe (1945) the cell count varied from 90 to 100 per c.mm. Harris and Bethell (1938) found 740 cells per c.mm. in the C.S.F. of the case they reported. Synge (1930) describes a case with a C.S.F. cell count of 300 per c.mm. In the five cases reported by Frankland (1941) the C.S.F. cell count varied from 230 to 1,078 per c.mm. None of these authors noted papilloedema in their cases, nor was it mentioned by Rolleston (1932). Price (1942), however, states that papilloedema and even optic atrophy occur as a sequel.

The high initial pyrexia and relative bradycardia found in our case conform to previous case reports in the literature. The parotitis was very mild, and its presence was revealed only by a further close questioning of the patient when it appeared to us that mumps alone could explain the presence of a coincident meningo-encephalitis and orchitis. There was no history of any contact with another case of mumps. There was a high initial polymorphonucleosis, but as the orchitis subsided an absolute lymphocytosis developed, as is usual in mumps.

Recovery was complete and rapid. We do not consider that it was influenced to any extent by the use of sulphadiazine.

Summary

A case of mumps with a mild parotitis and a fairly severe orchitis and meningo-encephalitis is described.

The case is unusual in that the C.S.F. cell count was only slightly raised and, apart from slight increase in sugar, the C.S.F. was otherwise chemically normal.

Papilloedema was a feature of the case, but was not followed by any impairment of vision.

We are indebted to the Department of Health for Scotland and to Dr. J. A. Jenkins, medical superintendent, for permission to publish this report.

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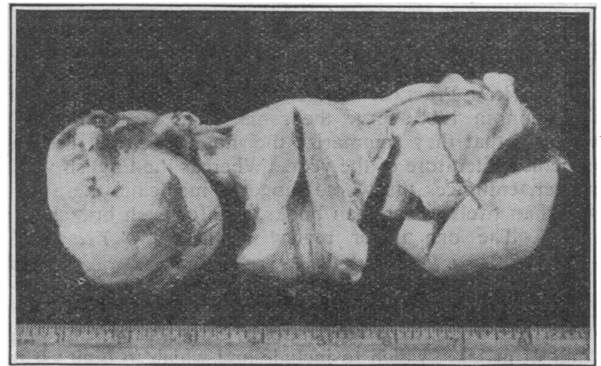
Medical Memoranda

Bilateral Ovarian Dermoid associated with a High Degree of Fertility

The case here recorded is of interest in that torsion of the pedicle of a cyst occupying the pelvis is rare, but the main feature is the high degree of fertility and absence of obstetrical mishaps.

Mrs. A., aged 40, was admitted to hospital on March 1, 1943, complaining of abdominal pain and vomiting. Her menstrual cycle was 28/4, and had always been normal until six weeks before admission, when she had intermenstrual bleeding and "cramps in the stomach." On admission the temperature was 99° and the pulse 88. In the right lower abdomen there was a tumour the size of a full-term foetal head which was movable and cystic and did not seem to be tender, although pressure in a downward direction caused pain. Per vaginam there was a blood-stained discharge; the cervix was badly lacerated and had been pushed forward behind the symphysis by a tense and tender tumour in the pouch of Douglas which had no demonstrable connexion with the abdominal tumour.

During examination under anaesthesia the tumour in the pelvis slipped up into the abdomen, when it became apparent that there were two separate ovarian cysts (see Fig.) and a bulky uterus; on opening the abdomen the pedicle of the cyst on the left, which was the smaller, was found to have rotated through two cycles and the walls were very congested. In view of the history of vaginal haemorrhage and the condition of the cervix, it was considered wiser



to remove the uterus along with the cysts. Convalescence was normal.

On being opened both cysts were found to contain a large amount of hair. Microscopical section of the tumours showed them both to be combined dermoid and pseudo-mucinous cystadenomata.

The patient's obstetrical history was as follows: Married at 22. Her first pregnancy ended in an abortion at three months, since when she had had 12 full-term normal deliveries. Each confinement took place at home under the care of a midwife. Her last baby was born 18 months before admission, and she had been a widow for a year.

It is generally accepted that ovarian tumours of this type are of slow growth, and in this case both ovaries must have been the site of these tumours during several of her later pregnancies.

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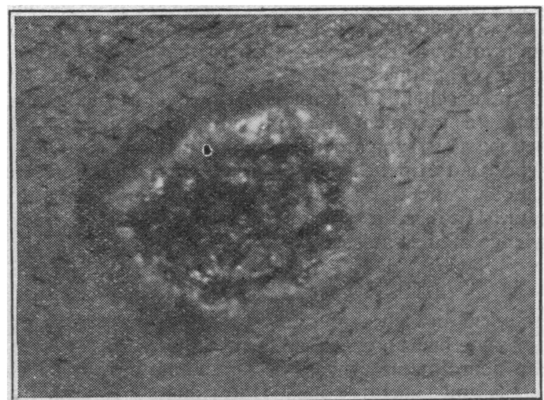
Cutaneous Anthrax treated with Penicillin

The following case of cutaneous anthrax successfully treated with penicillin may be considered worth recording.

Cpl. A. was admitted on Jan. 12, 1945, complaining of a small blister on the upper half of the left side of his neck which he had noticed for the past 48 hours. He had been feeling cold and off his food all day and had had a rigor, but no headaches, sweating, or constipation. His general condition was good; T. 102.4°, P. 96. The small vesicle on his neck was surrounded by an area of induration, and the adjacent glands at the angle of the jaw were enlarged and tender. Palpation of the abdomen revealed nothing abnormal.

Within 12 hours a circle of vesicles appeared, surrounding a small black centre (see Fig.). Fluid from a vesicle proved that the large Gram-positive organisms of anthrax bacilli were present. No Sclavo's serum was available, so a 5-day course of penicillin was given—15,000 units intramuscularly every 3 hours; a total of 600,000 units. Also 0.6 g. of N.A.B. was injected intravenously, as the clinical efficacy of penicillin in anthrax infection was unknown to us. The pustule was cauterized with pure carbolic acid. The temperature became normal after 24 hours' treatment, and remained so. The black centre became enlarged, and marked adenitis persisted for a week. The patient was discharged 16 days after the onset of his



illness, and when seen on Feb. 4 the black scab had nearly separated off and the adenitis had completely subsided. The only possible source of infection was a new woollen scarf which had been obtained from "Comforts" three days previously.

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