migrans. In the case recorded below the venous thromboses preceded by many years the objective signs of arterial involvement.

CASE REPORT

A man, aged 52, a country mason and married, was admitted to the General Hospital, Birmingham, under the care of Dr. J. M. Smellie, on February 7th, 1933, for the investigation of migratory thromboses of wide distribution and of many years' duration. The first attack of phlebitis occurred when he was 12 years old, in the left leg. He was admitted to St. Thomas's Hospital, London, eight years later, where portions of the left internal saphenous vein were removed. There were frequent recurrences of phlebitis, and on the outbreak of war he was certified as unfit owing to the condition of his legs. In 1914 the superficial veins of the abdomen were attacked by painful thromboses, and became dilated and obvious. By 1927 the condition had improved somewhat, but attacks of phlebitis in the legs and on the abdominal wall were frequent. In 1931 severe exacerbations forced him to bed for three months. During this period and in the preceding years he had many attacks of haemoptysis, mild in degree with no apparent cause, but associated with some pain in the chest. He continued to improve and relapse periodically until his admission to hospital in 1933.

On examination he was a well-built man of healthy appearance, apyrexial, with a blood pressure of 142/78, and a regular pulse of 76 to 80 beats per minute. The lungs and heart were free from physical signs of note. Both legs showed dilated tortuous veins, with a scar in the right thigh from the operation thirty-two years ago, and with many areas of healed thrombosis on both sides. The abdomen was traversed by dilated superficial veins with evidence of old clotting, but now free from recent thrombosis. A full investigation was carried out: the blood count was normal; there was no leucocytosis; the van den Bergh test, a blood sugar tolerance curve, a gastric test meal, and the Wassermann reaction were all within normal limits. No source of sepsis could be found on clinical or radiological examination. He was discharged with a diagnosis of "thrombophlebitis migrans," and a good prognosis was given.

Readmission and Operation.—On March 28th, 1933, he was readmitted to the hospital, twenty-four days after his discharge. He was complaining of severe cramp-like pains in the right hip and the right foot, the latter showing purple discoloration up to the middle of the dorsum. The foot was cold, and showed slight oedema. The right femoral artery pulsated, but the pulse in the popliteal and dorsalis pedis arteries was imperceptible. A lumbar sympathectomy was considered, and an intravenous T.A.B. vaccine test was done: the fact that although the general body temperature rose to 101.8° F. the temperature of the affected limb scarcely rose (78–80°) contraindicated sympathectomy. The pain became excruciating, and required large doses of morphine for its relief. As the gangrene began to spread, at the direction of Professor Seymour Barling I amputated the leg through the middle of the thigh by means of equal anterior and posterior flaps; in view of the diseased state of the vessels no tourniquet was employed, but the bleeding was extremely slight. The large veins contained organized clots, and the femoral artery showed severe occlusive changes.

Progress.—Two days after the operation severe pain commenced in the left foot, which became cold, numb, and discoloured, with signs of incipient gangrene; the pulse in the popliteal and dorsalis pedis arteries became imperceptible. Six days later the flaps on the amputated limb broke down, and coincidentally the patient developed a severe hypostatic pneumonia, from which he died twelve days after operation.

The Post-mortem Findings.—The heart was normal, with no disease of the coronary arteries; the aortic arch showed early atheroma. The lungs contained patches of bronchopneumonia, with many small dark-red areas suggestive of recent infarcts. The only evidence of vascular disease in the brain was a small area of old softening in the left optic thalamus. An unexpected finding was a complete fibrotic atrophy of the left lobe of the liver, with a compensatory enlargement of the right lobe. The localized affection of the liver suggested a vascular cause. The other abdominal viscera were normal. The vessels of the abdomen were carefully examined: the aorta and the inferior vena cava were densely bound together by inflammatory fibrous tissue, which

included many enlarged lymph glands. This inflammatory matting of artery and vein extended down into both lower limbs. On slitting up the aorta a ragged mass of ante-mortem thrombus stretched from a point three inches above the bifurcation; as this was followed down, the large vessels of the arterial and venous systems, from the common iliacs downwards, were found to be completely thrombosed. The inflammatory and thrombotic changes were unusually extensive, although Buerger reports cases involving the aorta. Telford and Stopford⁷ record that at operation for a perforated duodenal ulcer in a patient known to be suffering from thrombo-angiitis obliterans, the left common, internal, and external iliac arteries were palpated as pulseless immobile cords.

Histology of the Vessels.—The veins showed organized and canalized thrombi, and the arteries a similar process, both recent and old. The appearances were typically those described so exhaustively by Buerger, and the inflammatory background of the pathological state was well marked.

COMMENTARY

This patient had for forty years suffered from migrating thromboses: these involved the legs, the superficial veins of the abdomen, and the lungs, as shown by the attacks of haemoptysis (haemoptysis occurred in three of the four cases reported by Moorhead and Abrahamson). The onset of severe pain in the leg, succeeded by gangrene, the findings at operation and in the post-mortem room, and the histological appearances of the vessels leave no doubt that the ultimate diagnosis of thrombo-angiitis obliterans was correct. This conforms with Buerger's extended experience of these cases. A diagnosis of "thrombophlebitis migrans" seems to be an inadequate one, and may carry with it a false prognosis of benignity. Perhaps recorded cases of "thrombophlebitis migrans" in English literature, if observed over sufficiently long periods, may be seen ultimately to belong to the wider class of "thrombo-angiitis obliterans." Because of the somewhat doubtful position of "thrombophlebitis migrans" in vascular pathology, it is thought that this case should be reported.

I am grateful to Dr. J. M. Smellie and to Professor Seymour Barling for permission to publish these notes; to Dr. F. Mason Lamb, who conducted the post-mortem examination, which I attended, and who reported on the histology of the vessels; and to Dr. A. Brian Taylor for his helpful co-operation.

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INCREASED INTRAOCULAR TENSION IN YOUNG PERSONS AS A CAUSE OF SEVERE FRONTAL HEADACHE

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The four cases to be described are published in the belief that they represent a symptom-complex which is not commonly recognized. Each of these patients came complaining of frontal and temporal headache of varying degree and radiation; each was a young man between 20 and 30, and before the typical glaucoma age. In each case frontal sinusitis, tic douloureux, incipient herpes ophthalmicus, migraine, etc., were considered, and as far as possible eliminated. In each case the pain was increased by pressure on the eyeball, and the tension of the eyeball, as estimated by digital examination, was thought

to be higher than that in the other eye. There was no other constant abnormality in the eyes. The pupils, except in one case, were equal and round, and reacted equally to light. Visual acuity was normal to the individual patients. Cases 1 and 2 resented the glare of the ophthalmoscope, and I was unable to see the disk. Homatropine was avoided for fear of increasing the symptoms. I have since examined the fundi of each case under homatropine. Acting on the assumption that this increased intraocular tension might be the cause of the referred neuralgia, eserine was instilled into the eye in each case, with the results presently to be described in the following extract from the case notes.

CASE RECORDS

Case 1.—A. E. B., an officer, aged 27, complained of intense headache over right frontal and temporal region for twenty-four hours. Pain continuous, with exacerbations. No tenderness over frontal sinus. Nasal mucous membrane normal. Raised intraocular tension present. Pain increased by pressure of examination. Admitted to hospital at noon as probable onset of herpes ophthalmicus. Symptomatic treatment of raised tension by eserine drops, half-hourly for three instillations, and thereafter enough to keep the pupil contracted. By evening neuralgia was distinctly less. At this time anterior chamber was thought to be slightly shallower than on healthy side. Aspirin-phenacetin-caffeine powder was given to encourage sleep. Next day one A.P.C. powder was given to relieve pain of eserine instillation: tension was less. The third day pain had quite gone, and tension was thought to be slightly less than that of other eye. Patient kept under observation for three days. Herpes did not develop. There has been no recurrence of the neuralgia. When examined under homatropine six weeks later the disks were quite normal.

Case 2.—R. E. C., soldier, aged 25, complained of left frontal headache of moderate severity for three days. Awake at night. No previous history of similar attacks. Left pupil smaller than right. Definitely increased intraocular tension, and increase of pain on pressure of examination. Anterior chambers equal in depth. Treatment as above by eserine. A.P.C. powder given on two occasions to relieve pain of eserine instillation, which was distinctly differentiated by the patient from pain of the neuralgia. Tension equal to that of other eye, and pain all gone by third day. Pupils equal. When examined five days later under homatropine there was slightly more cupping of disk than in right eye, and very slight bending of vessels. Visual acuity 6/6. Examined five weeks later, disks were normal: cup 4 D in depth in each eye. No recurrence of pain.

Case 3.—N. M., an Indian servant, aged 30, had severe pain over right brow and in temporal region extending to behind right ear and over mastoid process; no complaint of eye at all. Has suffered off and on with this for eighteen months; treated at various times at other hospitals without relief. No tenderness on pressure over frontal sinus or mastoid. Nothing abnormal detected, except slightly raised tension in right eye and increase of pain on pressure. Anterior chambers equal in depth. Eserine only was used in treatment, and A.P.C. deliberately withheld to avoid confusing the issue concerning the cause of removal of pain. Next morning patient reported quite free from pain, and with tension equal in both eyes. He was genuinely pleased at the success of the treatment after so many months of disappointment. He was kept on eserine for four days, and has not had recurrence of pain since. Examined under homatropine ten days later, right pupil dilated considerably less than left pupil; both had two lamellae of homatropine, with twenty minutes' interval. Fundi and disks were normal. Three months later he had no recurrence of symptoms.

Case 4.—A. C., a soldier, aged 28, complained of continuous, slight to moderate, bilateral frontal headache, rather worse on left side, for three weeks. Pain radiated to the occipital region. Visual acuity normal. Anterior chambers normal in depth. Pupils equal and reacted. Definitely raised tension in both eyes, especially left. Increase of pain on pressure in left eye only. One week ago was freely purged with salines for three days, and A.P.C. given at night. Temporary relief, but now headache is as bad as ever.

Admitted to hospital; eserine instilled into left eye only, t.d.s. Next day pain gone from left side of head, but rather increased on right side. Tension less on left side than right now. Eserine instilled t.d.s. into both eyes. Next day all pain gone, but a heavy feeling in forehead. Tension equal in both eyes, but rather more than normal; eserine continued. Next day all pain and feeling of heaviness gone; tension almost normal. In this case previous course of salines and A.P.C. was unavailing, as was complete withholding of A.P.C. while in hospital. Seven days later there was no recurrence of symptoms, and tension quite normal in both eyes. Fourteen days later disks showed cup 4 D in depth in each eye. Vessels seemed slightly tortuous. Otherwise normal.

DISCUSSION

If from lack of knowledge I am making too much of this, to me, new symptom-complex it is because I can find no reference to anything of this sort in the ophthalmological textbooks at my disposal, nor have I read or heard of it elsewhere. The condition is unusual, in that primary rise of tension is associated with older persons, and the rise was not accompanied by the usual symptoms and signs of glaucoma, nor was the pain of the same type or distribution. Thus one would not readily associate this type of headache with an ocular lesion. It appears possible that many of the frontal headaches that are diagnosed as migraine in absence of vomiting and nausea may be due to this condition. Further, in view of Case 4, this condition should be borne in mind in all cases of frontal headache of obscure origin. It would seem that to have met four cases in four months in the relatively small community of Ambala suggests that this condition of increased intraocular tension may be a common cause of undiagnosed frontal headache. It would be gratifying and helpful to know whether eye specialists or others are familiar with a syndrome such as the one described.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

CANCER OF THE HARD PALATE: TWO CASES

As two cases of cancer of the hard palate recently came to my notice, interest led me to search the literature I possessed which dealt with this subject. Such descriptions as I have found depart so far from my cases that I consider it may be useful to portray them.

Case 1.—A man, aged 65, and a heavy pipe smoker, had noticed seven years previously a small smooth swelling surmounted by a little white ulcer on his hard palate, adjacent to a necrosed second molar tooth. The only symptom which attracted his attention to the swelling was a sensation of itching, the irritation being increased by pressure. Some two years afterwards he noticed that the swelling had begun to spread, and about the same time he began to have occasional shooting pains to the ear on the same side of the head. This was diagnosed as neuralgia, for which he was treated. Three years later the tooth was removed, but the growth of the swelling was not arrested. Seven years after the onset he consulted his doctor. The Wassermann reaction was negative. A portion of the tumour was removed for microscopical examination, and the following report was obtained: "A carcinoma of basal-cell type, infiltrating the deeper tissues and showing ulceration."

On examination of the roof of the mouth prior to operation a slightly raised swelling was seen covering the posterior half of the hard palate, and extending slightly on to the soft palate. It involved the left alveolus up to the inner margin of the tooth bed, but did not extend on to the right alveolus. The surface of the swelling was somewhat redder in colour than the normal palate, but not markedly so. To the touch it was smooth, and of a varying rubbery consistence; it could not have been described as hard or nodular. Immediately