

that it is histamine or a nearly related substance, and that our inability to obtain other than an amorphous picrate may be due to some impurity.

The chief difficulty is to distinguish this case from Buerger's thrombo-angiitis obliterans, which affects usually the lower limb of a male between the ages of 30 and 40, and may recur in the other limb later. As Buerger¹⁹ and Parkes Weber²⁰ have shown, this disease is common among Jews, but it is not confined to this race.²¹ Evidence has been adduced to suggest an organismal²² and also a nicotine²⁰ etiology.

We delayed full publication of our knowledge because we were not satisfied that our isolated case could be ascribed solely to ergot poisoning, and we should similarly hesitate to accept as proofs of ergotism evidence of numbness and coldness in the extremities of Jewish tailors, whose working attitude involves popliteal compression and whose workrooms may be cool. Since careful inquiries by Dr. W. Hanna, the deputy medical officer of health, in 1923, and again recently, failed to reveal other cases exhibiting symptoms of ergotism amongst foreign Jews in the Liverpool area, the presence of 0.1 per cent. of ergot in rye has not been proved dangerous, and we must regard our case either as a sporadic one of idiosyncrasy to gangrenous ergotism, or as a case of slight thrombo-angiitis obliterans contributed to by a diet containing ergot, for the following reasons: (1) the man ate exclusively rye bread containing at least 0.1 per cent. active ergot; (2) his attacks occurred in succeeding Novembers, about two months after the fresh ergotized rye was milled; (3) the absence of general arterio-sclerosis and diabetes;

(4) if 0.2 gram of ergot daily be regarded as causing gangrene this man would have taken this amount in three-quarters to one pound of rye bread; (5) cases of thrombo-angiitis obliterans usually involve the larger vessels of the limbs, whereas our case was peripheral and circumscribed.

REFERENCES.

- ¹ Kelly and Dilling: *British Medical Journal*, 1923, i, 287; *Lancet*, 1923, i, 336, 460, 566, 620.
- ² Robertson and Ashby: *British Medical Journal*, 1928, i, 302.
- ³ Barger and Dale: *Journ. Chem. Soc.*, 1907, xci, 537; *Trans. Chem. Soc.*, 1910, xevii, 284; *Journ. Physiol.*, 1909, xxxix, 25; 1910, xli, 318.
- ⁴ For details and literature see Cushman, A. R.: "Mutterkorn" in *Hefter's Handbuch d. exper. Pharmacol.*, 1924, Bd. II, 1327.
- ⁵ Woollaston: *Phil. Trans.*, 1762, lli, Part 2, 523; Bonjean: *Lancet*, 1845, i, 701; *Compt. Rend.*, 1845, xix, 1367; Siemens: *Arch. f. Psych.*, 1881, xi, 116.
- ⁶ Franqué: *Med. Jahrb. f. Nassau*, 1856.
- ⁷ Maissonneuve: *Gaz. des Hôp.*, 1854, No. 18; Debove: *Soc. Méd. des Hôp.*, February 27th, 1880; Boissarie: *Ann. de Gynéc.*, 1880, xlii, 422.
- ⁸ Kobert: *Arch. f. exper. Path. u. Pharm.*, 1884, xviii, 335, 348-49.
- ⁹ Grünfeld: *Dissert.*, Dorpat, 1892, p. 42.
- ¹⁰ Kobert: *Lehrbuch der Intoxikat.*, 1906, Bd. 2, p. 613. Griasnoff: *Lond. Med. Record*, 1883, xi, p. 78.
- ¹¹ Swiatlowsky: *Lond. Med. Record*, 1880, viii, 412.
- ¹² Debove: *Op. cit.*
- ¹³ Uberti: Quoted by Lehmann, p. 110.
- ¹⁴ Lehmann: *Arch. f. Hyg.*, 1893, xix, 113.
- ¹⁵ Report of Medical Officer of Health, Liverpool, 1922, p. 182.
- ¹⁶ Macdonald and Grier: *British Medical Journal*, 1928, i, 410.
- ¹⁷ Kutscher: *Zentralbl. f. Physiol.*, xxiv, 163; *Zeit. Natur. Genuss.*, 1905, x, 528; Barger and Dale: *Trans. Chem. Soc.*, 1910, xevii, 2594; *Idem: Journ. Physiol.*, 1910, xli, 499; Hanke and Koessler: *Journ. Biol. Chem.*, 1920, xliii, 543.
- ¹⁸ Totani: *Biochem. Journ.*, 1915, ix, 387.
- ¹⁹ Buerger: *Amer. Journ. Med. Sci.*, 1908, cxxxvi, 567; *Circ. Disturb. of Extremities*, Lond., 1924, 317.
- ²⁰ Weber, F. Parkes: *Quart. Journ. Med.*, 1916, ix, 289; *Lancet*, 1925, ii, 25; cf., Sourasky, *British Medical Journal*, 1927, i, 444.
- ²¹ Telford and Stopford: *British Medical Journal*, 1924, ii, 1035; Wheeler: *Ibid.*, 1927, i, 225.
- ²² Rabinowitz: *Surgery, Gynecology and Obstetrics*, 1923, xxxvii, 353.

NOTES ON THE INJECTION TREATMENT OF VARICOSE VEINS.

BY

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THROMBO-PHLEBITIS and peri-phlebitis of a varix sometimes occurs during or very soon after a toxic fever, such as typhoid fever; and also after a direct blow on the varix; fibrosis and cure of the varix follow. The preceding phlebitis, however, has usually been treated with alarmed respect and lengthy rest in bed.

Recently I met with a traveller who, during a mild typhoid fever, developed phlebitis of the varicose veins in one leg. He rejected advice to remain in bed, and with a thick solid red tender vein from ankle to saphenous opening took a four weeks' journey home—and then permitted me to reproduce by injection-stages a very similar clinical condition in the varicose long saphenous vein of the other leg.

It has been noted that phlebitis of a normal vein is set up sometimes by its intravenous injection with arsenobenzol compounds, quinine salts, or chaulmoogra oil derivatives. In my experience this has been transient with the first two drugs; the oil derivatives more easily cause fibrosis and occlusion of the healthy vein.

In 1913 in West Africa, unable to find an arm vein in a fat alcoholic patient suffering from subtertian malaria with cerebral symptoms, I had recourse to a visible varix in his leg; 10 grains of quinine hydrochloride in 10 c.cm. of boiled rain water were injected into the varix, and the leg then lifted high. This produced thrombo- and peri-phlebitis. He survived to express satisfaction for the cure of the varix. Some time later I injected salvarsan into a varix in the leg of another patient, being foiled of an arm vein; cure of the varix resulted after thrombo-phlebitis and fibrosis. Such an experience led, with trepidation, to some "cures" of varicose veins with quinine injections until, after the war, Sicard's work brought encouragement to proceed less fearfully and sporadically.

During the last few years I have treated over 200 cases of varicose veins of the leg by injecting into the varices quinine hydrochloride, sodium salicylate, or sodium

chloride. In over 100 the quinine salt has been used. In my hands, of the three, it has been the least uncertain in effect.

Recently, with Dr. J. C. Gilroy, some observations were made on a perhaps callous, but consenting and rewarded, male patient in the Seamen's Hospital, Royal Albert Dock, who had many varicose veins in both legs. About two inches of uninjected varix were dissected out for control comparison; and also, at intervals of time, the same length of other varices, ten to fifteen minutes, twenty-four hours, and seven days after their intravenous injection with one or other of quinine hydrochloride 13 per cent., sodium salicylate 20 per cent., and sodium chloride 20 per cent.

Naked-eye and microscopic examination of the several injected varices revealed, ten to fifteen minutes after injection, no clot and no recognizable change in vein wall; twenty-four hours after injection, however, the lumen was filled with firmly adherent clot, the intima was swollen, with damaged cell nuclei, and there was round-cell infiltration of the tissue outside the vein. Seven days after injection the firmly adherent clot was undergoing organization.

The treatment has had its difficulties, tediums, and anxieties for patient and operator. I have found, as compared with many thousand injections into normal arm veins, that only the larger varices are easy to inject. In most cases the patient must stand to be injected. For the operator's convenience this standing must be on a level considerably higher than that of the floor—a severe trial for the nervous patient; all are nervous at first, and some always. Often the patient may sit high enough to suit the operator; very rarely can injection of a varix be performed with the patient lying down. A tourniquet above the varix helps not at all, one below it sometimes helps a very little.

The more advanced the varicose condition the less uncertain is the effect of the injected drug; but intensity of effect may vary in the same leg, with apparently the same size and condition of varix, and same dose of same drug. Sodii salicylate 20 to 30 per cent., sodii chloride 20 per cent., and quinine hydrochloride 13 per cent.—each sometimes has failed after more than one injection into a varix to produce the requisite obvious phlebitis. With each the thrombo-phlebitis and peri-phlebitis has sometimes extended quickly far beyond the usual one or two inches of vein above and below the point injected.

This incommodes the patient, and may even cause a preference for a few days in bed. The operator's anxieties do not count.

In tropical medicine quinine injections, subcutaneous or intramuscular, have had an occasional horrid reputation for producing sloughing cellulitis, deep abscess, and, in the tropics, have been followed more than once by a fatal tetanus. It has also been reported that sodium salicylate 20-30 per cent. and sodium chloride 20 per cent., injected under the skin, have caused sloughing. Another kind of slough, one-eighth to one-half of an inch in diameter, has, under my hands, been produced by each of these three drugs, although the lumen of the varix had been fairly entered. This slough has occurred where loops of smaller tortuous varicose vein lay closely together; it appeared one-half to three-quarters of an inch above the point injected; injections were directed upwards. It is true that to transfix a loop in such a varix bunch is easy. In these cases, however, injection was accurately intravenous, and there was no haematoma or subsequent discoloration of skin from extravasated blood.

The clinical events have been: A purplish mark in skin; next day this was a grey blister, which later dried to a hard adherent black scab surrounded by inflamed and tender skin. Some weeks later the scab could be separated, disclosing then an excavated pouch filled with black sticky clot, under which lay small grey-yellow sloughs. Microscopic examination of clot and sloughs revealed no organisms, and none has grown from clot or slough in aerobic culture. It is evident that a whole small length of thrombosed varix, with some of the skin over it, died quickly *in situ*. Healing readily followed on treatment with hypotonic salines. But the patient's view of the matter may be as black as the scab, and in one it was almost a jet-black ingratitude; such patients do exist.

This sort of sloughing, and the far extension of thrombo- and peri-phlebitis, appear in retrospect to have been due to too large a dose of the drug for that particular varix. Both were infrequent, and have not occurred with more cautious dosage. In none of the cases, even in those with a rapid extension of the phlebitis from lower leg to saphenous opening, has there been noted any rigor or fever—both usual features of a *septic* thrombo-phlebitis.

In hospital out-patients varicose ulcers of leg have healed well after the injection of the accompanying varicose veins. In three women in the third to fourth month of pregnancy cure of varicose leg veins by injection into them of quinine hydrochloride produced complete relief from aching legs and oedema of ankles, and no hint of relief from the pregnancy. Even doctors have submitted to injection of their leg varices. One or two have lessened the tedium of treatment by probing discussions of the symptoms and signs of embolism. There has been no demonstration of embolism; and in view of the large number of cases now safely injected here and in France, by many practitioners, the risk of embolism appears to be remote.

Thrombo-phlebitis of a vein, whether caused by bacterial toxin, trauma, or "chemical" injection, is, then, safe—if the thrombo-phlebitis is *aseptic* and the vein *varicose*. The dose of quinine hydrochloride 13 per cent. (with methane as analgesic) has varied from a few drops to—very rarely—1 c.cm. But even large loops of varix, if lying closely together, should receive small doses. It is easier to repeat an injection next time than to treat a slough ulcer. The most frequent dose has been 1/4 c.cm.—and four injections at a sitting.

It has been almost the rule for patients to return later (some with shorter skirts and some with now one stocking only—a thinner one—on each leg) to demand injection of some small veins not thought worthy of treatment when the bolder varices had challenged operator and patient; some, too, to deplore once more the scars of a past excision of veins that had not prevented varices reappearing. Perhaps a few of these vain scalpel scars can be cancelled out by the depressed pigmented scar of an injection slough, or in some cases by the pale snuff-coloured sinuous line, or the brownish patch, that marks the track of a past too acute injection peri-phlebitis. Still later, the varices, now completely forgotten, and represented only by a thin hard subcutaneous cord; this more or less beige staining may

be counted to the operator for unrighteousness. It is not unlikely that the stain will prove as permanent as the scalpel and the slough scars. Two of the earlier patients in this series have now all three, yet are content and even grateful to all concerned; such patients do exist.

THE TREATMENT OF HYDRONEPHROSIS.

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In general surgical practice hydronephrosis is met with somewhat infrequently. It so happened that during the year 1927 six cases came under my care, of which five appear to me to present features of sufficient interest to justify publication. The sixth was a simple case of impacted renal calculus.

CASE I.

On January 16th, 1927, I was called to see in consultation a farmer, aged 79, wiry and active, with a tendency to occasional over-indulgence in alcohol. About fourteen days earlier he first complained of abdominal pain and nausea, but no vomiting. Under medical treatment the pain subsided for a few days and then recurred, with abdominal distension and constipation. The abdomen was found to be distended, but there was no visible peristalsis. Rectal examination revealed prolapsed piles, from which he had suffered for many years, and enlargement of the prostate. No growth could be made out. He was removed to a nursing home. Under treatment by enemata his condition improved and an x-ray examination after an opaque enema was carried out. The enema was badly retained and did not go beyond the lower end of the sigmoid. Everything seemed to point to obstruction due to growth, and an operation was decided on.

Operation.

On January 20th an incision was made, splitting the left rectus below the umbilicus. The sigmoid was found to be normal except for some small diverticula. On passing the hand upwards a large hydronephrosis of the left kidney was at once found. The right kidney felt normal. The abdominal incision was closed and the patient turned on his right side. A free lumbar incision was made. The pelvis of the kidney was found distended to a capacity of some thirty ounces; it was very adherent to surrounding structures. The fluid was evacuated by puncture, and the kidney, together with as much of the pelvis as possible, was removed rapidly. A small tear of the peritoneum was sutured and the wound closed, except for a drain.

The patient bore the operation well. He had to be catheterized the next day, but subsequently passed urine without trouble. He was well enough to leave the home three weeks after the operation, although there was still some discharge at the site of the drainage tube.

The case is interesting from the point of view of diagnosis. Dilatation of the renal pelvis not infrequently gives rise to symptoms of intestinal obstruction. In this case the tumour was masked in the first instance by abdominal distension. The probable explanation of the misleading x-ray findings is that the prolapsed piles prevented proper retention of the opaque enema. The urine was normal. The operation had to be carried out rapidly, and no cause for the hydronephrosis was found. There was not sufficient prostatic obstruction to affect the right kidney.

CASE II.

A medical student, aged 20, had been subject from early childhood to attacks of pain in the left loin, accompanied by vomiting, and lasting between one and eight days. The pain rose gradually to a climax and as gradually passed off. No diuresis after an attack had been noticed. On one occasion bacteriological examination of the urine had been made and streptococci found. The attacks had become more frequent lately and had interfered with his studies. He had been treated for gastritis, an x-ray examination of the stomach had been made, and he had also undergone a course of psychotherapy. Three months prior to my seeing him an x-ray examination of the kidneys had been made elsewhere, and he had been subjected to cystoscopy, after an attack was over, with negative results.

The patient was admitted to the Northampton General Hospital, and I was fortunate to see him during an attack. He was in considerable pain, and very tender on palpation in the left costo-vertebral angle. He had vomited copiously. The abdominal wall was rigid and muscular, and no tumour could be felt. A little pus was present in the urine. Immediate cystoscopic examination was carried out under general anaesthesia, after an injection of indigo-carmin. There was free excretion of the dye by the right kidney, but none by the left. A catheter passed up the left ureter stopped at 25 cm. A diagnosis of intermittent hydronephrosis was made.

Operation.

On February 4th, 1927, a lumbar incision was made, and the left kidney was found much enlarged and reduced to a shell. The pelvis was dilated to a capacity of seven or eight ounces. Any