CIRROID ANEURYSMS OF THE SCALP

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The mode of treatment of a cirroid aneurysm of the scalp depends mainly on its size; three methods of treatment, with case reports illustrating these, are described.

Small Cirroid Aneurysm

A small cirroid aneurysm which is localized to a small area, and especially if the skin is thin and ulcerated, is treated most expeditiously by complete excision with the overlying scalp, after carefully ligating the vessels supplying it. The defect is then closed by rotating a local flap in order to spread the tension over the whole suture line.

Case 1

A coal-miner aged 34 complained of a bluish-red mark on the upper part of his right ear and the scalp above it which had been present since birth. He had recently

FIG. 1.—Case 1. Small cirroid aneurysm of right auricle and the scalp adjacent to it, treated by excision of the aneurysm and the skin over it.

knocked his right ear on a stone projecting from the side wall of the pit. His ear bled profusely, the blood being bright red and "came in spurts." He said it was a long time before the bleeding stopped.

On examination there was a red-dish-blue swelling involving the upper part of the right auricle and the adjacent scalp, and a small blood clot was adherent to the summit of the swelling (Fig. 1). The veins in the region of the upper third of the right auricle and temporal scalp

near by were tortuous, dilated, hard, and pulsatile. There was a "bruit de diable" to be heard over the swelling. **Operation.**—On November 18, 1960, under general anaesthesia, the arteriovenous fistula, dilated veins adjacent to it, and the involved skin of the ear and scalp were excised. The defect was closed by forward rotation of the cartilage of the ear and by rotating a hairless scalp flap over the ear and denuded part of the temple.

Moderate-sized Cirroid Aneurysm

A moderate-sized cirroid aneurysm involving one-quarter to one-half the scalp can usually be excised from the under surface of a large scalp flap. Local anaesthetic solution with adrenaline may be injected into the affected part of the scalp, avoiding, if possible, direct intravenous injection.

One-stage Operation.—A large U-shaped flap is raised, surrounding the main mass of the cirroid aneurysm. At the circumference the large vessels entering the aneurysm are ligated and divided, and a number of mattress sutures of chromic catgut are also used to complete haemostasis. The flap is then elevated from the pericranium and a rubber-covered stomach clamp is applied across its base to control the bleeding until the remaining vessels in the flap have been ligated. If the thickened and dilated vessels of the cirroid aneurysm itself are not firmly adherent to the skin, they can then be immediately dissected from the under surface of the flap. After the main mass of the tumour has been excised the stomach clamp is released, the remaining bleeding vessels are ligated, and the flap is then sutured back into place.

Two-stage Operation (Searby's (1931) method).—On certain occasions in large aneurysms, when the vessels are intimately adherent to the surface skin over a considerable area, it may be wise to adopt a modified Searby procedure. A few layers of wet gauze soaked in saline and suitable antibiotic powder are placed across the bed of the flap (Fig. 2). The flap is then replaced, and the patient returns to the ward with a light dressing in place. Four days later the patient returns to the theatre; the scalp flap has now become oedematous, and the dilated veins with the subcutaneous tissue and aponeurosis can be freed from the under surface of the flap.

FIG. 2.—Moderate-sized cirroid aneurysm of the scalp—stages in the operation. Left: The U-shaped scalp flap containing the cirroid aneurysm has been raised and turned outwards. A stomach clamp, with its blades covered by rubber, has been applied across the base of the flap. Right: Wet gauze has been placed over the defect in the scalp and the flap replaced prior to excision of the aneurysm four days later.

Case 2

A young girl assistant librarian aged 17 had noticed a swelling on the right side of her forehead since childhood. Three years previously the swelling had started to increase in size and the veins on the right side of her forehead had become dilated. She had noticed that after exercise the swelling became larger and "throbbing" was felt over it. In May, 1949, a local surgeon ligated both superficial temporal arteries, and the swelling subsided temporarily, but within a month it had regained its previous size.

On examination a moderate-sized cirroid aneurysm was found involving about one-quarter of her scalp. Over the right anterior quadrant of her hairy scalp and the right side of her forehead there were greatly dilated tortuous, hard, and pulsatile veins. A thrill could be felt over them and a "bruit de diable" was present.

Operation.—On September 13, 1949, the right external carotid artery was first ligated and a large U flap was then made over the aneurysm. The medial limb of the flap started in the midline just above the base of the nose and extended vertically upwards into the hairline, curving outwards to the right, crossing the parietal and squamous temporal regions, and ending at a point about 1 in. (2.5 cm.)

above the right auricle. The vessels on each side of the incision were ligated and undersewn with catgut mattress sutures. The flap was raised from the pericranium and then the dilated vessels were dissected from the under surface of the scalp. The flap was returned to its base and sutured in position, but in two places the overlying skin was damaged and two small sloughs occurred at these sites. This delayed healing; but a month after the operation the wound had healed and the patient went home.

Large Cirroid Aneurysm

Large cirroid aneurysms which involve most of the scalp and have deep communicating vessels through large holes in the skull, and also intracranial arteriovenous fistulae, should be treated conservatively. A spontaneous cure may occur at some time, due to thrombosis which occludes the fistula. This may occur during a period when the blood-pressure happens to fall—after, for instance, enforced rest in bed, sudden haemorrhage from any cause, or the judicious use of hypotensive drugs.

Case 3

A housewife aged 51 stated that the veins over the whole of her scalp had been dilated since childhood and probably since birth. When she was 18 years old Professor Garré, of Bonn, ligated under local anaesthesia a number of the largest vessels without benefit. She escaped as a refugee to England, but did not come to the General Infirmary at Leeds until March 6, 1950, when she complained of continuous "buzzing" in her head and headache which interfered with sleep.

On examination she looked tired and miserable, but appeared stoical. The veins within most of her hairy scalp were dilated, hard, tortuous, and pulsatile, and there was a leash of especially large and tortuous vessels extending vertically along the centre of the forehead and also in the midline in the occipital region (Fig. 3). A thrill could be felt over these dilated vessels and a loud "bruit de diable" like a "bee in a bag" could be heard. Her face, and especially her eyelids, were puffy and oedematous and her thyroid was symmetrically enlarged but soft. She had varicose veins in each leg and thigh, and her blood-pressure was 215/125 mm. Hg. An x-ray examination showed erosion of the outer table of the skull by the dilated surface vessels, and large channels communicating with the interior. Large meningeal vascular canals were also visible. The heart was not enlarged, but there was a retrosternal goitre. The Wassermann reaction was negative; basal metabolic rate +16; blood cholesterol 200 mg./100 ml. An electrocardiogram was normal. She was seen in consultation with Mr. W. R. Henderson and Mr. A. Dickson Wright, and conservative treatment was agreed upon.

FIG. 3.—Case 3. A large cirroid aneurysm involving most of the scalp with large communications with the interior of the skull. The prominent leash of veins descending in a vertical direction in the frontal region can be seen; the patient's hair hides many of the dilated veins in the rest of the scalp.

In August, 1954, she suffered from phlebitis in the veins of each leg. She was put to bed for four weeks, and during this time she noticed that the veins in her scalp became smaller. On August 20, when she woke up in the morning the "buzzing" in her head had gone, the headache had disappeared, and the veins in the scalp had become quite small.

She was seen at the out-patient clinic shortly after this and the veins of her scalp were found to be collapsed though still visible, there being no pulsation or thrill over them, and no bruit could be heard. Her blood-pressure at this time was 170/100 mm. Hg.

She has been seen periodically since that time and remains in good health, cheerful, and free from symptoms, and the veins in her scalp are almost invisible.

Discussion

"Spontaneous" recovery took place in one-third of the patients with carotid-cavernous fistulae who were treated at the Radcliffe Infirmary, Oxford, between 1938 and 1954 (Potter, 1954). The first "successful" case of carotid-cavernous fistula after common carotid ligation was reported by Benjamin Travers in 1811. The operation was carried out on May 23, 1809, but although the pain and swelling were less after the operation a smaller, painful, pulsatile swelling remained. On October 28 the patient had a miscarriage, and she bled profusely and lost consciousness. Next morning the swelling and pulsation in the aneurysm had disappeared, which suggests that the fortuitous fall in blood-pressure may have been an important factor in her recovery, perhaps more important than the operation.

Potter quotes this case and describes 15 cases treated at his own hospital over a period of 15 years: in five cases spontaneous recovery took place without operation. In two patients thrombosis occurred after a sudden fall in blood-pressure, one after a "syncopal attack" and another after blood loss during an amputation. In two patients thrombosis and spontaneous cure took place shortly after carotid arteriography—in one patient a few hours after this procedure, and in another patient within 24 hours of arteriography, when 42.5% and 35% diiodone respectively were used.

Potter suggests that in the younger patients hexamethonium bromide might be used as a hypotensive agent to promote thrombosis. Now that the opaque medium used for arteriography is less likely to cause thrombosis in the carotid vessels, perhaps hypotensive drugs and rest in bed should be tried before advising operation on a large cirroid aneurysm or when access is difficult and dangerous.

Summary

The size of a cirroid aneurysm of the scalp determines to a large extent the method of treatment. Three methods are described with cases illustrating these.

One patient, aged 51, who had a large congenital cirroid aneurysm of the scalp was thought to have an aneurysm which was inoperable. She had an attack of thrombophlebitis in varicose veins in each leg, and went to bed for four weeks. When she woke up one morning the buzzing in her head and the swelling had gone. A "spontaneous cure" had taken place.

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