from his duty for half an hour each week. Who would suggest the treatment of the soldier whilst at his duty by one of the other methods—say the internal? Is there any possibility that it would be carried out regularly and systematically? In answer to this I would merely remark that it is hard enough to carry it out among the better-educated classes; how much harder would it be among soldiers?

I think the best indication as to continuing or interrupting the injections is the patient's weight. He ought to be weighed regularly, and if he gains weight or if it remains stationary and he appears to improve otherwise, continue the injections; if he does not appear to improve, and weight be lost, then the treatment ought to be interrupted for, say, a month, and then recommenced, when it will be found that weight will go up. I think that in the majority of cases, with interruptions, treatment ought if possible to extend over a period of from six to eight months.

The efforts of the medical profession to sustain measures to prevent the spread of the disease have long since been frustrated, and now that the Contagious Diseases Act has apparently been finally done away with and full sway given to syphilis to work its worst amongst our soldiers, its treatment becomes of more moment than ever. In the intramuscular method I believe we are in possession of a plan of treatment which increases our chances tenfold of not only alleviating but of curing the syphilitic soldier and rendering him fit to meet the many hardships of tropical service.

Finally, in the essay published in the Army Medical Report, 1891, I expressed a hope that medical officers would give the intramuscular treatment a trial. This they have done, at least in India, with most favourable results. Let me in this paper tell them that my reason for advocating so strongly this mode of treatment is not so much because mercury, given in this manner, is more beneficial in the treatment of syphilis than when administered by other methods (personally I think it is far superior) but that it is actually the only reasonable method by which the syphilitic soldier can be kept under treatment over that period which we know to be necessary to ensure his cure; and I would ask them, whatever solutions of mercury they prefer to use, to give this method a fair trial, and they will not be disappointed with their results. Moreover, I feel certain that, if the treatment becomes general, it will not be long before the admissions, invaliding, and death-rates of the army show a marked decrease.

OPERATION UPON THE GASSERIAN GANGLION BY THE HARTLEY-KRAUSE METHOD FOR FACIAL NEURALGIA: THREE YEARS AFTER.

By J. LYNN THOMAS, F.R.C.S.,
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HISTORY.

MRS. M., aged 61, was referred to me by Dr. J. D. Williams for advice in November, 1894, and after careful consideration we advised an intracranial operation upon the nerves affected. She was taken ill quite suddenly in 1887, with *tic douloureux* of the right supraorbital and infraorbital nerves; this attack lasted about five weeks, and one of her teeth was extracted. Two years later another violent attack came on suddenly, and attacked the infraorbital and inferior dental nerves, the supraorbital nerve escaping this time; she had six teeth extracted with no relief to her pain, and ever since she has not passed one day without a twinge of pain. The stabbing pain woke her up when sleeping at night or by day, occasionally it was so intense that she became delirious; the nerves affected were the right infraorbital, inferior dental, and the auriculo-temporal. She had three tender spots: the points of exit from their canals of the infraorbital and inferior dental nerves, and one near the angle of the mouth on the upper lip.

She had tried many drugs, the constant current battery, and change of air, with no relief. During the last twelve months life had been a misery, and her few hours of ease had been spent in dreading the onset of another attack; she had only drunk liquids, and these only on the left side of her

mouth; she could only open her mouth a short distance without bringing on a "terrible twinge" along the course of the inferior dental nerve. On this account she lived on liquids alone, and had lost a great deal of flesh. A slight draught of air, the sudden movement of her body or the slamming of a door brought on an attack along the course of the infraorbital, inferior dental, and auriculo-temporal nerves. The right half of her mouth was swollen, and the red portion of the lips dry and encrusted, owing to her fear of moistening them; the swollen condition was possibly due to trophic or vasomotor changes, but the volitional immobility of the whole right side of the face might perhaps have contributed to the existence of this condition.

She had not combed the right side of her head for a long time owing to tenderness and the fear of exciting a sensory spasm. There was almost complete analgesia over the distribution areas of the second and third divisions of the fifth nerve; sense of gentle touch was unimpaired, but hard touch was described as tenderness; sense of heat was less acute than on the left side; the condition of the tongue could not be tested for obvious reasons. She had had ten children, and had always led an active life. Her existence was one of utter misery, and she said her only hope of relief from pain was death.

I advised under the circumstances an intracranial operation in preference to multiple external operations, because I considered that the disfigurement would be much less by the first method, and the risk to life about the same in both; whilst the time required for, say, a Carnochan's operation and that for exposure of the Gasserian ganglion leaves but little room for choice.

OPERATION.

On December 17th, 1894, I exposed the middle fossa of the base of the skull by the Hartley-Krause method, and at once divided the superior maxillary nerve with ease, and then pushed the end out of sight into the foramen rotundum, its proximal end was eventually torn away from the partially divided Gasserian ganglion. I divided the Gasserian ganglion

Diagram showing (1) ophthalmic, (2) superior maxillary, (3) inferior maxillary, branches from the Gasserian ganglion. X the point where hæmorrhage took place.

until I saw the motor root of the inferior maxillary nerve lying underneath it, my intention being to save it. When I was cutting about halfway through the inferior maxillary nerve at the foramen ovale at the spot marked X in the diagram there was a sudden and rather alarming flooding of the field of operation with blood, which was stopped by plugging and removal of the brain retractors. Proceeding with the operation, I had to stop after tearing away the superior maxillary nerve owing to intermittency of the brain pulsation being noticed by Dr. J. D. Williams. The wound was drained for twenty-four hours and fourteen days later the patient left the private hospital with the wound healed up.

AFTER-HISTORY.

Within a month she had a few twinges of pain along the course of the inferior dental nerve from its exit at the mental foramen to the middle of the lower lip. She has had occasional recurrence of the pain along this nerve up until now (December, 1897), but for months at a time she has been quite free from any pain. There has been no recurrence of the pain along the second division of the trigeminal nerve nor along the course of the auriculo-temporal nerve.

I once saw her in an attack of pain along the inferior dental nerve, and I suggested reopening the scar to complete the operation originally intended, but she replied that "The pain is not so bad as that."

The areas of distribution of the auriculo-temporal and infraorbital nerves were quite anæsthetic for several months after the operation, but now she knows that one touches her and the parts feel "quite numb" or, as the patient prefers it, "quite deadified." There was never any motor paralysis.

REMARKS.

Perhaps it would have been much wiser if I had done the operation in two stages, as Horsley recommends in any serious intracranial operation, instead of attempting it in one stage as is advised by Krause in this particular operation. Although the whole operation only took an hour and five minutes, there being very little trouble in exposing and manipulating the outer half of the Gasserian ganglion, owing, I think, to the patient being dolichocephalic, still the shock proved to be rather serious, judging by the intermittency of the pulsation of the cerebral mass. There is no doubt that manipulation intracranially in these cases is more difficult in brachycephalic skulls owing to the increased depth of the ganglion from the surface. The Hartley-Krause method is comparatively simple compared with that of Rose, and the free removal of bone towards the base with rongeur forceps, and the free use of Horsley's wax over the cut bone, saves much time.

At present the dépression in the temple seems very firm and non-pulsatile, and I do not think that an osteoplastic flap of the skull in this region is worth the making with its risk of dividing the middle meningeal artery in the bone, and so causing an unnecessary loss of blood before the bone flap is turned down, and also the risk in the future failure of the bone performing what is expected of it; with a $\frac{1}{4}$ -inch trephine and a pair of rongeur forceps one can expeditiously and with safety make the necessary opening as low as possible towards the base of the skull. The middle meningeal artery running to the foramen spinosum caused no trouble in this case.

An elaborate and valuable paper by Louis McLane Tiffany deals with 108 cases of intracranial operations for the cure of facial neuralgia, and most of the points of interest in those cases are fully considered in the *Annals of Surgery*, November, 1896.

The sensory condition of the face in my case before the operation suggested that the cause of the neuralgia was distal to the Gasserian ganglion, because there were no analgesia and blunting of the sense of heat in the distribution of the ophthalmic division of the fifth; one would hardly expect a primary pathological condition of the Gasserian ganglion itself to be so territorially limited as to cause a neuralgic distribution of pain to two or one only of its main efferent branches; nevertheless, the second and third branches are the ones most commonly affected, and hence, in all probability, when disease of the ganglion exists in such cases, it is due to extension from the affected nerves.

It is but rarely that an intracranial operation has been done for neuralgia without the previous performance of one or more peripheral operations, but in this case it seemed to me that there would be more shock and greater difficulties in doing the necessary peripheral operations than at once to do what I decided upon.

The bleeding which prevented my completing the operation was probably from the small meningeal artery by the side of the inferior maxillary nerve, and I think I am justified in stating that had I completely divided the nerve without the bleeding there would not have been any recurrence of pain along the inferior dental nerve. Had the patient allowed me to operate the second time I should have attempted the division of the inferior maxillary nerve and ganglion by a fine electro-cautery, whilst the nerve would be held taut by a fine hook; by this means I hoped to avoid bleeding, and the sudden yielding of the hooked nerve would indicate complete division.

If Dr. Williams had not notified me of the intermittency of the cerebral pulsation I should have continued the operation, and possibly might have overstepped the operative tolerance of my patient, hence my concluding remark is like the first one: perhaps it would have been much wiser if I had done the operation in two stages, as Mr. Horsley advises.

My thanks are due to Dr. Williams for his vigilance whilst giving the anæsthetic, and to Mr. Morland for assisting me at the operation.

FRAGILITAS OSSIUM:

NOTES ON THE HISTORY OF A FAMILY IN WHICH IT APPEARS TO BE HEREDITARY.

By J. HUNTER, M.B., C.M. GLASG.,
Senior House Surgeon, Macclesfield Infirmary.

On entering upon duty here as House-Surgeon there was a lad who had been admitted a few weeks previously with fracture of the femur. I discovered that he had broken his leg several times, and on further inquiry at his home obtained the following history:

At the age of 9 he fell about 7 feet, fracturing the right femur. Three years afterwards, when sliding, he fell and fractured his right femur. Two years later, when playing football, he fell and fractured the left femur. Two years later still he was knocked down when playing football, and fractured the right femur.

He has a sister who fell while playing, eight years ago, and broke the left femur.

Another sister fell a few feet and broke her right femur.

She and her brother were dismissed on the same day from the infirmary with the fractures completely united. On the way home she rested her back against a door, which gave way, and she fell, fracturing the left femur this time.

Another brother sustained a fracture of the right femur when playing. About two months after, on being lifted out of bed and placed on the floor, his foot caught the leg of a table near, breaking the femur again at the same point evidently, as the limb, which was everted after the previous fracture, became straight again on union taking place.

His father has had several fractures, four of the right and three of the left femur. The first occurred at the age of six months, the last nine years ago. He is 50 years of age, and states that he has always had good health. He is about 4 feet 10 inches in height, with marked disproportion between the length of his body and limbs. There is some deformity, with considerable shortening of both femurs, the right being about 2 inches shorter than the left. The remainder of the family, aged 15, 6, and 2 years respectively, have never sustained any fracture, and with the exception of the youngest seem to be in good health. The grandfather is still living, and states that none of his relations ever suffered in the same way.

I consider the above history rather interesting, as the family seem healthy, and there is nothing to indicate any particular diathesis. The seat of fracture seems to be always about the junction of the middle and upper thirds, and the degree of violence necessary to produce one is comparatively slight. Union is complete after the usual period has elapsed.

MULTIPLE PAPILLOMATA OF THE LARYNX IN YOUNG CHILDREN TREATED BY TRACHEOTOMY ONLY.

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Women and Children.

CASE I.—CURE AFTER WEARING A TUBE FORTY-FIVE MONTHS.

DOROTHY S., a girl aged 3 years and 3 months, was brought to the hospital on February 13th, 1894, with well-marked symptoms of laryngeal obstruction, including stridor during inspiration and expiration, inspiratory recession of the chest walls, chronic hoarseness, and a frequent croupy cough. At times she was quite voiceless. Her parents were healthy, and had no other children. The patient's hoarseness had been observed for nearly two years, and an attack of whooping-cough six months previous to her admission had aggravated it considerably. Latterly she had suffered from alarming attacks of dyspnoea in the night time, and these had induced her parents to seek medical aid. The diagnosis of multiple papilloma of the larynx was arrived at in spite of the fact that repeated attempts had failed to obtain a view of the larynx, on account of the smallness of the space available and the restlessness of the patient, but