

action upon the deeper tissues, the 2 per cent. is the most efficient; as the stronger the solution of cocain the greater the superficial contraction and the less absorption of the drug.

My usual procedure is to spray the parts with a 2 per cent. solution, followed in five minutes by a pledget of cotton, saturated in the same solution; after five minutes apply a 4 or 10 per cent. solution on cotton; in five minutes after the last application the parts will be as thoroughly anesthetized as the idiosyncrasy of the patient will permit.

The use of cocain outside of minor operations, where I believe it will be in most instances superseded by eucaïn, are many and exceedingly valuable.

The purpose of this paper is to give the personal experience of the writer in the use of cocain on the following acute diseases:

In acute rhinitis, where the nasal mucous membrane is swollen and sensitive, the nasal passages more or less occluded by the intensity of the congestion, the use of a 2 per cent. solution in the form of a spray gives the patient the greatest possible relief and affords the physician an opportunity to cleanse the inflamed membrane.

If the treatment is followed by a 4 per cent. solution spray of antipyrin, then by albolene or blandin in spray form the relief and effect of the treatment will be greatly prolonged, sometimes rendering the nasal passages clear for hours. Many cases will be aborted by two or three such applications at intervals of a few hours.

I have found a pledget of cotton saturated with a 4 per cent. solution of cocain exceedingly efficient in epistaxis, usually no bleeding following the removal of the cotton, which should be left in the nasal passage several hours.

Acute tonsillitis, if treated in its incipiency, will frequently be aborted by prompt and persistent use of cocain sprayed or applied to the tonsil and surrounding parts with a brush or cotton covered probe. The only unpleasant effect I have noticed from this treatment is slight nausea, which is promptly relieved by one or two 0.65 to 1.3 gram doses of potassium bromid, and any depressing effects upon the heart's action is rendered unnoticeable by 10 to 15 drop doses of tincture digitalis previously administered.

I have used eucaïn in similar cases with but fair results; so far in my experience cocain seems much more efficient, causing greater contraction of tissue, while eucaïn produces greater anesthesia with slight congestion of the mucous membrane as well.

I have frequently used cocain spray in the nasal passages and larynx of patients suffering from an acute attack of laryngeal asthma, the relief being almost instantaneous; also in spasmodic laryngitis, or false croup in children, cocain spray has almost always afforded immediate relief, a second attack rarely recurring, that night at least.

I do not remember a single instance of nausea or depressed heart's action following the use of cocain in either of these affections.

In the treatment of acute otitis, furuncle and acute otitis media suppurations, the most gratifying results have been noticed after the use of a 4 per cent. solution.

Saturate a pledget of cotton, warm it over the lamp and gently insert in the canal of the ear and the pain of acute otitis, in many instances, will be quickly and permanently relieved or greatly modified.

Furuncle, if noticed in its incipiency, will in most

cases be aborted by keeping the canal of the ear packed loosely with cotton saturated with cocain; if not aborted, it will run a rapid, almost painless course.

In cases of acute suppurating ear with a tendency to hemorrhage, the action of the cocain and boric acid solution is most gratifying to the patient and yields as speedy a cure as any treatment I have used.

In no aural case have I seen or known of unpleasant or toxic effect from the use of cocain, its action probably being purely local with at least but a very slight absorption.

I have, in this paper, avoided the consideration of the use of cocain in operations upon the throat, nose or ear, believing that eucaïn is a more desirable anesthetic in most cases.

Exception might be taken to this view in the use of the electro-cautery in operations for anterior or middle hypertrophy of the mucous membrane on the turbinate bone; cocain in this case, by more fully contracting the tissue gives a better opportunity for the use of the electric knife.

In the removal of the posterior nasal growths with the Jarvis snare or an electric snare eucaïn is much more desirable, as the contractile power of cocain frequently renders it impossible to grasp the growth with either instrument.

The abusive use of cocain and the cocain habit, I believe in most cases, follows the use of pills or tablets containing the drug combined with other medicine for the relief of laryngeal and pharyngeal irritation, or taken internally for the relief of some forms of dyspepsia.

I have never seen a case in the medical profession, but am told that many are unfortunately addicted to the habit.

The greatest care should be observed by the physician in all cases where there is necessity for the use of the drug in prescriptions, less the patient, by indiscriminate use, should form a habit more deleterious than either that of alcohol or opium.

I would suggest that all prescriptions be marked: "Not to be renewed without a written order from the physician."

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DISCUSSION.

Dr. WILSON—I have never been able to relieve acute otitis media with cocain 4 per cent. I have obtained much more benefit from heat. Does not Dr. Smock think the heated pledget of cotton may have given relief?

Dr. SMOCK—I think the cocain has much effect. Heated applications in otitis are always grateful.

FRACTURES OF THE NASAL BONES.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY FREDERICK C. COBB, M.D.

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Neither in the works on surgery, nor in the special works on the nose and throat is there much information about this subject, and yet any injury deflecting the nasal bones causes a deformity very apparent and disagreeable throughout life, besides often obstructing one of the nostrils. Probably many of these cases occur in childhood, due to falls or blows, and the injury to the nasal bones is so masked by the swelling resulting from the accident that fracture is not diagnosed. As the swelling disappears, it is noticed that the nose is no longer quite straight, and

that one nostril is somewhat obstructed. These cases often come, in adult life, with a request that the nose may be straightened or the nostril cleared for respiration.

To replace the nasal bones is not as a rule difficult, but to keep them in place has been found to be almost impossible. After fracture, splints have usually been applied to the inside and must be worn two or three weeks. Although the lower meatus is very tolerant of tubes or splints, as shown by their use in the correction of septal deviation, the middle meatus and the upper portion of the nasal cavity is not so accommodating. Pain, sneezing and swelling of the conjunctiva on the affected side usually follow the introduction of splints high up in the nose, and the patient is unable to bear the treatment. Therefore, after correcting the nasal deformity as well as possible at the time by etherizing, and straightening the nose, the surgeon is usually obliged to content himself with the hope that the nasal bones will remain as he has left them, a hope which is frequently disappointed. It may be asked, what is there to deflect the nasal bones after they have been placed in proper position, and I believe the answer can be found, first, in the spring-like elasticity of the cartilaginous septum which is often thrown out of its normal conditions by

whether as the result or cause of the misplaced nasal bones is a more doubtful question. My view is that the blow which fractures the nasal bones also dislocates the septum more or less from its bony attachment, thus altering its normal direction of spring and prevents its exerting that pressure to keep the nasal bones in their mal-position. In one of the cases I cite, the septum could be seen, on pressing on the bridge of the nose, to alter its position from a deflection partially obstructing one nostril, to one giving almost perfect symmetry to both nostrils; yet when the nasal bones were released the septum returned to its old position. This case illustrates the fact that the replacing of the nasal bones without splints can not always be trusted to keep them in position. For some time we have made attempts to keep a pressure on the bridge of the nose by the use of the band of a head mirror, but it was found that no matter how tightly the strap was pulled, the looseness of the scalp allowed so much movement of the apparatus that it

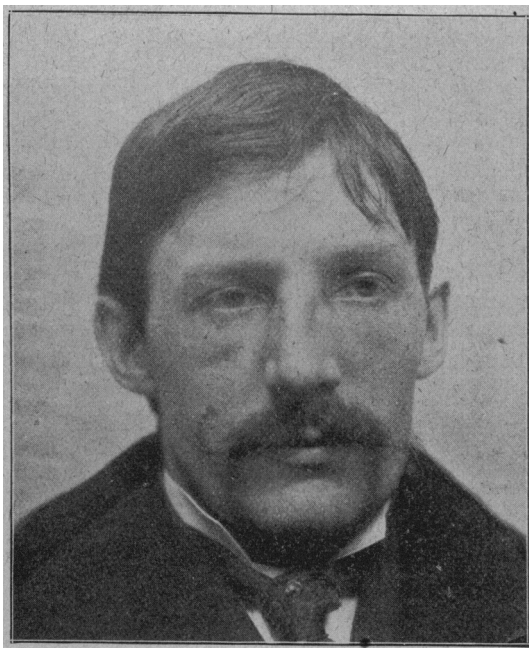


Figure 1.

the accident; and secondly, in the fact that an organ so exposed as the nose can not be well protected against slight pressure, during sleep especially. When a very slight impulse will alter the position of a fractured nasal bone, we can not wonder that they so rarely stay in place. The elasticity of the septum, if its normal attachments were unaltered, would tend to keep them in their position after the nasal bones had been restored to their normal position. I believe many, if not most, fractures of the nasal bones alter the usual attachments of the septum to its neighbors, and the co-existence of dislocation of the cartilage from its attachment to the maxillary process and the superior maxilla is often found with a long standing deviation of the nasal bones. Other septal deformities, also, are usually present in such cases, but



Figure 2.

was practically inefficient in holding the nasal bones in place. Noting the difficulty of turning one's hat on one's head suggested the idea of having a band made of steel shaped to the head by some similar method. This plan has seemed to do so well that I suggest it for your consideration. The band is shaped to the head by the use of the latter's form, by which the shape of the head is accurately marked on a sheet of paper; but this method required an enlargement of the paper model and more complicated apparatus than was necessary. It was found also that as it corresponded to the head in only one plane, the steel band being wider than that plane could not be so well shaped to fit the head. For patients accessible to an instrument-maker, a strip of lead was used, fitted to the head at the level desired, and then a steel ring

was made to correspond with it. For physicians living at a distance from an instrument-maker, the following plan is suggested: A strip of oiled silk is wrapped about the patient's head at the level desired for the band, and a few turns of a roller bandage of plaster of Paris being moistened, are applied around it, and allowed to harden in position. When the plaster is removed, a cast of the inside may be made by oiling it and filling it with plaster, or the hardened bandage may be sent direct to the instrument-maker, who can shape a steel band to correspond with it. The head-band is prevented from sliding downward by a strap passing over the head, and from sliding upward by a chin-strap. It should be broad enough to allow very little lateral twist, but the effect of such twisting can be neutralized by the screw attachment as well as by the spring. The nose being unbandaged, its position can be clearly seen by the patient, and the pressure of the spring on the nasal bones may be increased or diminished as may be necessary. If there is a depression as well as a lateral motion of the nasal bones the depressed fragment should be first pried up into position from the inside of the nose, under ether, and then packing applied high up in the nostril, if possi-

ted to the left, while the nasal bones inclined to the right. On examination of the nostrils the septum was found to be deviated anteriorly into the right nostril at about the junction of the bony and cartilaginous septum. On pressing the nasal bones to the left, the septum straightened itself, but not completely. The nasal bones were movable, the fracture appearing to be at their junction with the frontal and superior maxillary articulation. The fracture was compound, for bleeding occurred from the right nostril on moving the bridge of the nose laterally. The nasal bone on the left side was depressed from an old fracture, dating back several years. The splint, as shown in Fig. 2, was applied, and at the same time the depressed nasal bone was pushed into place from the inside and held there by a pledget of antiseptic wool. This had, however, to be removed within ten days on account of pain and discomfort, as the patient was unable to bear it. The splint caused no discomfort, and the septum and nasal bones under its pressure returned to their normal position. The splint was kept on twenty-five days, and the nasal bones were found to be firmly fixed in position. The only inconvenience resulting from the splint was a slight reddening of the skin at the point of pressure of the pad. Figs. 1 and 3 show condition of nose before and after treatment.



Figure 3.



Figure 4.

ble. The discomfort and conjunctivitis resulting are the main objections to this plan, but there seems to be no other way if the fracture be a depressed one. If the pressure of the pad against the nasal bones produces any irritation of the skin, the pad may be moved slightly higher or lower without altering its efficiency. I have seen no inconvenience except a slight reddening of the skin follow the use of this splint. The following cases and cuts illustrate the use of the splint:

Case 1.—J. L. K., age 25, entered the Massachusetts General Hospital, February 8, with the following history: Three days before, he was assaulted by a man with a club, and received several violent blows on the bridge of the nose. Examination showed ecchymosis of the upper left eyelid and under both eyes. The nasal bones were deviated to the right side, and the bridge of the nose was easily movable. The left nasal bone was somewhat depressed; the tip of the nose was deflec-

Case 2.—H. C., a girl, aged 8, entered the hospital with the following history: She was accidentally struck on the right side of the bridge of the nose by a base-ball bat. The physician in attendance writes me that the nose was so much deviated that a probe was with difficulty introduced into the left nostril. He, however, replaced the nasal bones as well as possible, and she entered the hospital for further treatment. Examination showed a marked deviation of the nasal bones to the left. On gently pushing the bridge of the nose it was found to yield easily, while on rhinoscopic examination, the septum was seen to alter its position from a considerable deviation to a nearly vertical position. The nasal bones were dislocated from the nasal process of the superior maxilla, and were movable upon each other. The splint was applied, as shown in Fig. 4, and kept on two weeks, leaving a nose apparently perfectly straight externally, and showing internally a nearly vertical septum without any obstruction of either nostril. No discomfort resulted from the splint, nor were there any marks of pressure on the skin except a very slight reddening.

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DISCUSSION.

Dr. ROE—The apparatus devised by Dr. Cobb for the treatment of fracture of the nasal bones is an ingenious one, but he has evidently made it without previous knowledge of a similar instrument that was devised several years ago by Adams of London, called Adams' nasal truss, which is figured in Watson on "Diseases of the Nose." Longitudinal fractures of the bones of the nose, as a rule, require little or no retentive apparatus, for the bones almost always remain in place after the fracture is reduced; but transverse fractures of the nasal bones will not remain in place and therefore require retentive apparatus. In these cases I use both an external and internal support. I fit a metallic shield, usually made of aluminum on account of its lightness, cut and bent so as to conform to the size and shape of the nose before the injury. This is placed on the outside of the nose and held there by adhesive plaster. For the inside support, after the bones are replaced, I pack the vault of the nostril lightly with antiseptic gauze. Below this I insert a spring made of light brass spring wire, nickel plated. One arm of the spring passes up under the dressing, while the other rests on the nose. To guard against irritating the tissues, the arms of the spring are covered with rubber tubing. The tension of the spring can be so regulated as to give the exact pressure required. The pressure in these cases should always be light, for the reason that very little is re-



Codman & Shurtleff,
Boston.

quired to retain the bones in place, there being no muscular action to displace them. Moreover, if there is undue pressure the dressing at once becomes irritating and unbearable. In some cases Adams' truss or Dr. Cobb's apparatus might be of special service, but I have found no cases in which the plan I have described has not given most excellent results.

Dr. STUCKY—I have tried Dr. Roe's method and I find that the cotton or gauze produces considerable irritation. I now use a modification of Asch's tube, and get very good support. I tried sheet lead outside, but found it heavy, and now use dental rubber. I bend it and hold it with rubber adhesive strips. I put the Asch tube in hot water until it becomes pliable and then apply it.

The CHAIRMAN—I have used satisfactorily a plaster of Paris dressing. It is not always possible to get a splint such as has been described, and in two cases I have had difficulty in keeping splints from slipping. I have the patient lie down and adjust a plaster of Paris mask. This is made quite thick over the nose and in the angles between the nose and cheek; curvatures in the upper contour are left for the orbits, and it then spreads out over the cheeks to the ears. It should be lined with thin rubber cloth. The fragments should be previously adjusted and maintained in the right place by pressure during the "setting" of the plaster. Tie the mask by a couple of tapes, one over and one under the ear, coming together behind the head. The results have been very good. If you wish to get additional pressure, take a bit of cotton and put it within

the mask where pressure is desired, when you dress the case, every day or two, adding cotton as you require pressure. An intra-nasal tube or splint is sometimes necessary in addition. The only objection to this method is the temporary disfigurement.

Dr. ROE—I have never found any bad results from internal support if there is not too much pressure. Pack with cotton lightly, not too firmly.

Dr. COBB—We have tried the plaster mask in the Massachusetts Hospital and it did not seem strong enough. Masks of metal, though they kept the relative position of the nasal bones, did not keep the whole bridge from deviating one way or the other. Possibly a combination of splint and bandage might do well.

CERTAIN CONDITIONS OF THE TONSILS WHICH LIMIT THE USEFULNESS OF THE TONSILLOTOME.

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It seems a safe assertion to say that the tonsillotome is the instrument most frequently selected by the surgeon in the performance of tonsillotomy. In most instances, however, I think that excision would be more effectually done by other means than by the guillotine-knife.

This opinion may appear easier of acceptance or denial, if we think for a moment why we should excise a tonsil at all. The operation is done either for the removal of a mass from the fauces which occludes the respiratory tract and interferes with phonation, or for the purpose of freeing the throat from the presence of tissue already so abnormal that it readily becomes infected by any micro-organisms which produce an inflammatory process. In either event, unless the work of excision is done thoroughly, the end sought is not attained, and the instrument depended upon has failed in its work. Why should the tonsillotome be an instrument peculiarly well adapted by its size, shape and action to fail in its work? This question may be answered by considering the conditions usually presented by the class of tonsils where the operation of excision is justifiable.

The text-books of anatomy tell us that the tonsils are almond-shaped masses of lymphoid tissue placed within the somewhat triangular-shaped space between the palato-glossus and the palato-pharyngeus muscles; that they are about one-third of an inch wide by three-fourths of an inch long, the vertical being the longer diameter. There are many such tonsils, yet, even within normal limits, there are such enormous variations from this standard that such divergences can not always be considered evidence of disease. The tonsils lie at a point where in embryonic life a very complex development is in progress. Between that anterior end of the fetal fore-gut which pushes itself upward beneath the hind-brain, and the invagination of the epiblast which forms the stomodeum, lies the "primitive velum," separating the fore-gut from the anterior region of the future mouth. This hypoeplastic membrane will soon disappear, and the mouth will be formed part from the hypoblastic element of the fore-gut, part from the epiblastic element of the stomodeum. Both of these elements enter into