recognized until after death. Swelling of the tongue, cheek and neck started two weeks before entrance to the hospital; soon the tongue ulcerated and gave rise to occasional hemorrhages and at entrance the mouth was filled with the swollen tongue, sloughs and blood clots. The local condition improved under treatment, but the general condition grew steadily worse. Autopsy showed tuberculosis of the tongue and epididymis, and a severe stomatitis much like that seen in mercurial poisoning. One male, thirty years old, with a gangrenous ulcer of the inside of the cheek, but not perforating, died a few days after entrance, apparently from general sepsis.

Four cases designated as noma died, 2 being young children, and 2, men fifty years old. Pneumonia and measles preceded the noma in each child respectively. There was the typical gangrenous ulcer of the buccal surface advancing to perforation, autopsy showing also a necrosis of the upper jaw and an acute bronchopneumonia in the case that lived two weeks; sepsis and a pneumonia probably killed the other child at the end of four weeks before the cheek had become perforated. One of the adults entered in collapse with a gangrene of the cheek extending from the mouth to the ear. In the other case the disease started as an alveolar abscess followed by a series of abscesses, retraction of the gums and loosening of the teeth. Sloughing of the cheek and necrosis of the lower jaw followed, with death at the end of a week.

Acute glossitis.—These cases are interesting from the lack of ascribable cause in many instances, from the rapid onset of swelling and the equally rapid subsidence under treatment. Of 28 cases all but 5 were in males of about thirty years of age. A sore throat, a blister, a rough tooth or a bite was given as the exciting cause in some, but more frequently no cause could be found. In several the swelling attained its maximum within a day or even within an hour, but in the majority it took four or five days. In half the cases the swelling affected the entire tongue, while in the remainder it was confined to one side or to the base. The swelling was great enough in most instances to almost completely fill the oral cavity. Pus was rarely noted, and where the organ was incised relief followed as well from evacuation of blood as from pus. In 11 cases in which the tongue was opened, either spontaneously or with the knife, there was alarming dyspnea, while the cases treated with washes and poultices to the neck were for the most part not urgent and rapidly yielded to the milder form of treatment, a patient rarely being detained in the hospital longer than five days. Two patients died, one from uremia and cystic kidneys, and the other probably from acute sepsis. The latter, a woman of thirty, entered delirious, in high fever, and with a phlegmon of the tongue and floor of the mouth. Operation was done at once on account of dyspnea, but the patient died in a few hours. One markedly alcoholic patient had three attacks at intervals of a month, with two operations.

The history of the cases throughout impresses one with the fact that the phlegmonous type is much severer than the abscess type. In some it is difficult to distinguish between a true glossitis and a Ludwig's angina, and indeed the two conditions may coexist, or the disease may start as a cellulitis of the floor of the mouth and extend to the tongue.

Ludwig's angina.—Only 9 cases were indexed, 1

being fatal. Eight were in adult males, and 1 in a girl of fourteen. One case opened spontaneously into the mouth; all of the remainder were operated upon, some within the mouth, but the majority beneath the chin. The origin of these cases is obscure, carious teeth being the favorite cause ascribed by the patients. The clinical picture is very characteristic in all; a brawny fulness beneath the chin, an elevation of the floor of the mouth to the level of the edge of the teeth, with a pushing upwards and backwards of the tongue, and in some a cellulitis extending in various directions as far as the shoulder or the chest. The single fatal case obtained temporary relief from dyspnea by free incisions into the sublingual space, but within a few hours a tracheotomy was necessitated; dyspnea, however, returned, and the patient died two days later, probably from a septic pneumonia.

The impression that one obtains from studying these records is that the diseases are severe and that the treatment required must be vigorous. Where, as in glossitis and angina, the cases are not severe enough to demand immediate operation for the evacuation of pus or (of equal importance) of blood for relief of obstruction to respiration, the medical procedures must in their way be equally energetic. Catharsis, abundant food, rest, cleansing and antiseptic washes and large hot poultices to the neck and face will often abort a case that threatens to become serious within a few hours. When, however, there is doubt, or when delay seems dangerous, a free incision into the swollen tongue or the mouth floor is best, whether pus is present or not. The cases of stomatitis can probably be benefited if the gangrenous sloughs are removed with the curette or the cautery.

The incision in glossitis, unless there is a well-defined collection of pus—which is not to be expected—is best made into the dorsum on each side of the median line. In the angina cases the incision is best made, in most instances, in the median line below the chin, whence each lateral space can be easily explored with the finger or a blunt instrument until the small focus of pus, if present, is found.

The distress and suffering of these cases is frequently intense; the drooling, the inability to swallow or talk, often the dyspnea and cyanosis, in addition to the acute general infection, make the condition a grave one, but, fortunately, under good treatment, of brief duration and without sequelæ for the most part.

THE RESULTS OF OPERATIONS ON VARICOSE VEINS.¹

BY J. B. BLAKE, M.D., BOSTON.

THE treatment of varicose veins has always been unsatisfactory. Non-operative treatment is palliative, but in recent years a cure has been attempted by operation. This consists either in (1) ligation of the veins in several places, with or without the removal of small sections; or (2) excision of a considerable portion of the vessel in continuity. Accurate statistics are necessary to determine the success of operative treatment. Cases must be traced and reported after the patients have returned to their customary occupations and habits of life; after the conditions which produced or

¹ Contributed to the Boston City Hospital Reports, Eleventh Series.

avored the original varices have again been established.

Statistics of this character are not numerous, and are not easily obtained. Hospital cases are proverbially difficult to trace, and this class of patients is no exception to the rule. Furthermore, it is essential before attempting to classify results, to determine what constitutes a "cure" or a completely successful operation. A simple standard, and one which seems reasonable, is, that if the patient can follow his customary occupation, and considers himself well, the surgeon may consider him cured. And the reverse of this (if the patient's statements can be believed) should equally be held true.

Finally, the element of time and the age of the patient present additional complications, and render a positive standard still more difficult to obtain. An interval of six months after operation is the minimum time limit, and it is probable that this should be extended to a year.

Statistics conforming to the above requirements have been obtained in 11 cases, all but 2 of which were operated at the Boston City Hospital. Of these, 7 were cured, 3 were relieved temporarily or partially, and 1 was worse than before. Some of these patients were examined personally, others replied in writing, and, in 1 or 2 cases, members of the immediate family furnished the information.

It is obvious that no sweeping deductions can be drawn from so small a number of cases, but an examination of them shows certain instructive and interesting facts. Briefly stated, these are as follows:

The single case in which the condition was described as "worse than before operation" seems to represent a type in which operation of excision will probably be followed by little or no improvement. It is therefore described in some detail.

The man was sixty-three years of age, born in Ireland, and was a street laborer. He had extensive varicose veins for forty years, and had been operated upon four times, once on the right, and three times on the left leg.

Seventeen years ago, the veins in the right leg were ligated subcutaneously with silver wire, at points 5 inches above, and 5 inches below the knee. He has had complete relief from painful or distressing symptoms since then. The veins are still visible, and are large and tortuous, from ankle to saphenous opening, and over the entire inside of the thigh, but the man stated definitely that they do not cause him any trouble.

The left leg was subjected to a similar operation, in London, twenty-five years ago; it was followed by relief of symptoms for about ten years. Pain and distress then began to return, and in 1893 a second operation was done in Boston. This consisted of a dissection and the removal of about 10 inches of the left internal saphenous vein. After leaving the hospital he was free from pain for six months, and then the symptoms recurred. In 1895 a third operation was performed—also in Boston. The man said that, owing to his previous experience, he requested that this last operation should be by "tying, and not cutting." The surgeon, however, made a dissection of about 5 inches, and the man insists that he has had pain ever since, and worse than before. Examination shows two wide scars, corresponding to the operations described above, but no veins above the knee. Below, the veins are distended, but not as much as on the

right side. The leg swells, however, and the pain makes him lame.

This case is an excellent illustration of the fact that size or extent of varicose veins, whether in the scrotum, at the anus, or on the extremities, bears no necessary relation to the discomfort or disability of the patient. A large mass of veins may be free from distressing symptoms, and a small varicosity may at times cause a patient to seek hospital treatment.

Three cases are classed as "partially or temporarily cured." In 1 of these the unpleasant symptoms have entirely disappeared, but an ulcer, which closed after the operation, has broken out again, though its area is smaller than formerly.

A second man has returned to work, though he writes that his "leg still pains him and some of his cords bother him."

The third case was relieved for one year. This patient is a cook and is on her feet all day before a fire. At the end of the year the veins above and below the incision began to swell. Pain commences soon after she begins to work, and increases during the day. She is, however, able to continue her occupation.

Seven cases are considered cured. In 1 of these the internal saphenous vein had previously been ligated, but without relief. It is to be noted, however, that some of these cases have been operated less than a year, and as it sometimes happens that relapse follows a year of relief, it is obvious that these cases have not yet passed the final stage. These cases represent various degrees of severity, with the exception of extreme varicosity, complicated by advanced age. The ages in this group vary from twenty-five to fifty years, and the occupation included engineers, stablemen, cooks, clerks, etc. In all cases the scars are firm, not tender and not painful. In 4 the operation was performed at least three years ago.

In conclusion, it may be said:

(1) Operation for radical cure of varicose veins by dissection is not successful in every case.

(2) To obtain successful results, cases must be selected and certain conditions avoided, and recommended to palliative treatment.

(3) The conditions which will probably militate fatally against satisfactory results are: (a) Old age, or an extremely debilitated condition; (b) excessive and very extensive varicosity; (c) occupations which to an extraordinary degree favor the development of varicose veins.

(4) Cases which may be cured by a thorough and careful operation are: (a) Local varix, even of marked prominence, particularly if thrombosis has occurred, either in thigh or lower leg; (b) extensive varix, limited to a single venous stem; (c) varicosities, which are a bar to passing civil service, military or naval examination; (d) cases in youth and middle life; (e) cases in which the development of the permanent varicosity was at least partially due to more or less removable conditions (flat foot, garters, etc.).

(5) Operation, even if not entirely successful, will usually relieve such complications as thrombosis, hemorrhage and ulceration.

(6) The usual conditions which follow unsuccessful operations are: (a) Pain in and around the scar; (b) general swelling and tenderness of the leg; (c) development of varicosities above or below the operation scar, but not at the site of the operation itself.

(7) In all operated cases, general systemic treatment as well as local treatment should be prescribed, together with exercise and the avoidance of a continued upright position whenever possible.

(8) Cure of symptoms does not necessarily mean the removal of all visible varicosities.

(9) Comparison of relative methods of multiple ligation and continuous dissection must be based upon a larger number of cases than are here recorded.

(10) Bennett's conclusions² and his extreme limitation of the indication for successful operation are too sweeping.

A CONTRIBUTION TO THE THERAPEUTIC ACTION OF HEROIN.

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In the treatment of patients suffering with diseases of the respiratory organs the indication frequently arises for a remedy which will allay the irritation of the affected mucous membranes and relieve the harassing cough. For this purpose opium and its alkaloids have been hitherto the chief reliance of the physician. This was from necessity and not from choice, for morphine presents many objectionable features in this class of cases. The relief of cough is often obtained at the expense of gastric disturbance, constipation, and a feeling of general lassitude, while the drug is apt to arrest the bronchial secretions and render expectoration more difficult. For these reasons, when my attention was drawn to heroin by the very extensive studies of Dr. Manges, of New York, I decided at once to give the preparation a trial, with the view of determining its relative advantages as compared with the opium alkaloids. My connection with the Bellevue Hospital Outdoor Department and the Demilt Dispensary afforded me an excellent opportunity for making such experiments.

Professor Dreser, who was the first to make careful investigations of heroin on animals, demonstrated that it produced a diminution in the number of respirations, with an augmentation of the volume of inspired air and an increase in the force of expiration. The same phenomena have been observed in human beings by a large number of observers. It has been found that while heroin acts as a sedative in conditions of irritation, its action upon the respiratory centres is that of a stimulant. Moreover, it is free from any depressing action upon the heart or circulation, a fact which I have always noticed in my own experience, thus permitting the use of heroin even in cases in which cardiac lesions exist. The observation that heroin has a regulating influence upon the breathing also caused it to be employed in conditions of dyspnea, to which attention has been directed by Professor Leo.

Its analgesic properties have also been utilized in the treatment of neuralgias by Professor Eulenburg; of painful uterine affections by Dr. Mirtl, of Vienna; and in diseases of the stomach attended with pain by Dr. Einhorn, of New York.¹ Recently a very thorough investigation of its analgesic and hypnotic qualities has been made in the Howard Hospital, of Philadelphia, by Drs. S. H. Brown and E. D. Tompkins,²

who upon the ground of their experiments pronounce it a very safe and reliable analgesic. Professor Eulenburg further suggested its use in the treatment of morphine habits, a suggestion which has been adopted with excellent results.

As heroin is insoluble in water, it is of advantage to employ it in the form of the hydrochloride, which may be readily dissolved, and is therefore adapted for hypodermatic use. My experiments have been conducted exclusively with this preparation, which is identical in effect with heroin, both as regards physiological action and dosage. Below I have subjoined a few cases among the large number treated, with a view of illustrating the action of the drug in various diseases of the air passages, as well as in other conditions:

CASE I. J. B., age twenty-two, employed in a cigar factory, complained of a feeling of thoracic discomfort, resembling constriction within the chest. At times he became nervous, anxious and restless, and this was generally followed by a spasmodic attack. Examination revealed long drawn out inspiration and prolonged expiration, the patient stating that he felt as if the air were unable to enter the lung fast enough to prevent constriction. There was present extreme dyspnea and whistling breathing. On expiration the abdominal muscles contracted, assuming a board-like firmness and hardness. During these attacks the patient found it necessary to fix his shoulders by grasping the back of a chair in order to bring the supplementary muscles of respiration into action, although little relief would be obtained. During one of these attacks I discovered a subnormal temperature. On both inspiration and expiration distinct sibilant and sonorous râles could be heard all over the chest, being audible even at a distance.

The patient was instructed to change his employment, and I placed him on heroin hydrochloride, $\frac{1}{2}$ grain every four hours, and at bedtime, with cascara sagrada, $\frac{1}{2}$ drachm, as he complained of constipation. The attacks, which were quite frequent and usually lasted for a half hour, diminished both in severity and duration after the first week's treatment. Since three weeks the patient has never suffered a night attack (which was quite frequent), but as the disease is of hereditary origin, a permanent cure cannot be expected, although no attack has occurred in twenty-three days.

CASE II. W. K., age nineteen, employed in a hide and leather house, had been able to speak only in a husky whisper for seventeen days. He was troubled with hoarse and stridulous cough with abundant mucopurulent expectoration, frequently streaked with blood and of a very offensive odor. Respiration was accompanied by a whistling sound, and swallowing of solid food often excited spasms of the glottis; talking caused fatigue. Severe paroxysms of coughing and straining were experienced in the morning, due to the accumulation of secretion at night, which was thrown off with considerable difficulty. At first I put him on astringents and general expectorants, but with very little relief of the cough, straining and dyspnea, until I placed him on heroin hydrochloride, $\frac{1}{2}$ grain three times daily, and $\frac{1}{4}$ grain before going to bed. After two doses the cough and dyspnea were considerably relieved, but not until the following night did the patient enjoy a perfect and undisturbed rest, the want of sleep having been the cause of his

¹ Philadelphia Medical Journal.

² Therapeutic Gazette, August 15, 1900.

³ Lancet, October 15, 1898.