"*Marcus*. All the contagion of the south light on you."
(*Coriolanus*, I, 4, 30.)

Again,

"*Olivia*. . . . How now?
Even so quickly may one catch the plague?
Methinks, I feel this youth's perfections
With an invisible and subtle stealth
To creep in at mine eyes." (Twelfth Night, I, 5, 292.)
"Oh, when mine eyes did see Olivia
Methought she purg'd the air of pestilence."
(Twelfth Night, I, 1, 18.)

"Suppose
Devouring pestilence hangs in our air,
And thou art flying to a fresher clime."
(King Richard II, I, 3, 283.)

"*Portia*. What! is Brutus sick;
And will he steal out of his wholesome bed,
To dare the vile contagion of the night,
And tempt the rheumy and impurged air
To add unto his sickness?" (Julius Caesar, II, 1, 263.)

As the supernatural was invoked in the working of drugs, so also was it in the causation of disease, and in particular the heavenly bodies exercised a controlling influence.

"*Timon*. . . . Be as a planetary plague, when Jove
Will o'er some high-vic'd city hang his poison
In the sick air; let not thy sword skip one."
(Timon of Athens, IV, 3, 107.)

"And therefore is the glorious planet, Sol,
In noble eminence enthron'd and spher'd
Amidst the other; whose medicinal eye
Corrects the ill aspects of planets evil,
And posts, like the commandment of a king,
Sans check, to good and bad; but when the planets,
In evil mixture, to disorder wander,
What plagues, and what portents."
(Troilus and Cressida, I, 3, 89.)

Of late, I believe reference has been made to the efficient health regulations of Italian cities in early time. Such regulations existed. Thus the apothecary sells the poison to Romeo at peril of his life.

"*Apothecary*. Such mortal drugs I have; but Mantua's law
Is death to any he that utters them."
(Romeo and Juliet, V, 1, 66.)

And this passage shows how careful they were about infectious diseases:

"*Friar John*. The searchers of the town
Suspecting that we both were in a house
Where the infectious pestilence did reign,
Seal'd up the doors, and would not let us forth."
(Romeo and Juliet, V, 2, 8.)

The action of the mind on the body and the action of the body on the mind are suggested in these two passages:

"*Agamemnon*. Princes,
What grief hath set the jaundice on your cheeks?"
(Troilus and Cressida, I, 3, 1.)

"*Constance*. . . . For I am sick, and capable of fears."
(King John, III, 1, 12.)

And the two following are selected from many similar ones, which show a considerable knowledge of the physiology of digestion:

"Things sweet to taste prove in digestion sour."
(Richard II, I, 3, 236.)

"Now good digestion wait on appetite,
And health on both."
(Macbeth, III, 4, 38.)

(To be continued.)

ANEURISM OF THE AORTA.*

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THE recent presence at the same time in the wards of the Denver City and County Hospital of four cases of aneurism of the transverse portion of the aorta led us to give a joint clinic upon them that the laryngeal and radiographic features of this interesting disease might be brought out as well as the usual clinical signs.

The cases were as follows:

CASE I. Kiler, sixty-six, male, engineer. No history of syphilis. Complaints of pain in upper chest, dyspnea, expectoration, choking sensation upon trying to sleep, with occasional vomiting. He is aphonic.

The notes made upon his admission state that the apex beat is one inch to left of left nipple, in fifth space. Heart sounds negative, excepting moderate aortic accentuation. There was marked pulsation to be felt by placing one hand in front and one behind the chest. Marked tracheal tug. A systolic souffle is heard over the upper sternal region and to the left under the clavicle. This area is dull. A diastolic murmur is heard over the aortic region. No pulse can be felt in the left radial artery. There is moderate atheroma, lungs practically negative. Pupils equal and respond to light. The systolic pressure on the right as taken by Dr. Sewall and Dr. Hall was 117 mm., diastolic 80 mm.

The urine was negative. As Dr. Levy will mention, the left vocal cord remains in the cadaveric position. There has been no severe pain and no interference by pressure with any internal organ manifested excepting the left recurrent laryngeal nerve. A pulsating tumor may be seen by the fluoroscope in the dull region mentioned.

The aneurism is, we believe, in the transverse portion of the arch of the aorta, and of quite moderate size, and not growing materially.

This patient was examined again March 9, 1906, by Dr. Hall. The left pulse could be felt very slightly at the wrist, showing that a collateral circulation or

* A clinic at the Denver City and County Hospital, at which four cases of aneurism of the transverse portion of the arch of the aorta were shown.

lessened pressure on the subclavian had permitted the current to become re-established. The heart had retreated a little toward its normal position. The aneurism, with the long rest in bed and the iodide, had become somewhat quiescent and the patient was very comfortable. Within two weeks, however, the lungs became obstructed and doubtless edematous, and he died rather quickly.

In the accompanying Röntgenogram by Dr. G. H. Stover (Kiler 1723), the shadow of the aneurism may be seen bulging to the left. At the time of the displacement of the heart to the left, the latter organ was carried over by the development of the aneurism in this direction.

CASE II. Neal, colored, male, thirty-five years of age, coachman. Has probably had syphilis.

Two months ago he began to complain of weakness and dyspnea, compelling him to stop work.

He had, upon admission, the following signs: slight edema of ankles. Cardiac beat very diffuse, to be seen in area extending from second space to right of sternum to seventh space two inches to left of nipple. A systolic thrill is felt over most of this area. A loud systolic murmur is heard at the apex, transmitted to the axilla. In the remaining area a continuous whirring murmur of different timbre is heard, loudest in systole, and over the pulmonic region, and transmitted to both subclavian arteries. The arteries of the neck pulsate visibly. Bulging and marked dullness exist over the manubrium. Pulsation can be felt through and through the chest, and with the tip of the finger in the suprasternal notch. Marked tracheal tug and tracheal diastolic shock. Corrigan pulse. Pupils negative. Lungs apparently normal. Abdomen negative.

With the fluoroscope a pulsating tumor may be seen to the left of the manubrium.

The radial pulses were equal. Blood-pressure, systolic 142 mm.; diastolic 120 mm. The urine was negative. The patient has, we believe, an aneurism of practically the same character and location as the last one, excepting that it does not involve the recurrent nerve. The continuous murmur is generally thought to indicate a communication between the sac of the aneurism and the pulmonary artery.

This patient died seven or eight months later, and, at the post mortem examination, a communication one-fourth inch in diameter was found between the large aneurism of the aorta and a small aneurismal bulging of the root of the pulmonic artery. Apparently during this interval the aortic aneurism had invaded the ascending portion of the arch as well. The cardiac valves were all

thickened, but apparently competent, the heart much enlarged, dilatation predominating in the right ventricle, and hypertrophy with dilatation in the left. Much edema of the lower part of the body and legs existed. The whirring murmur was doubtless due to the communication between the two great arteries and the edema to the involvement of the right side of the heart. The immense area of shadow in Dr. Stover's Röntgenogram (Neal, 1721) shows the extent of the aneurismal sac.

CASE III. Clark, male, fifty-six years of age, store-keeper.

No history of syphilis. For one year has been too feeble to work. He complains chiefly of dyspnea, weakness and swelling of legs and feet.

Upon stripping the patient one is immediately struck with the dilatation of the veins over the left upper quadrant of the chest and along the margin of the ribs. An enormous tortuous vein carries blood from the anterior surface of the upper left arm to the inner end of the left clavicle, and a net-work of veins in the area mentioned help to do the work of the obliterated left subclavian vein. The left arm is easily seen to be larger than the right, and it is cyanotic. Measurement shows it to be three-fourths inch greater in circumference than the right arm.

Arteries atheromatous. The heart area is slightly enlarged downward and to the left. A double soufflé is heard at the aortic region. Corrigan pulse is present. No tracheal signs. Left eye is lost. Right pupil normal. The right radial pulsation occurs a little before the left one. Quite marked pulsation of whole left side, but not localized. No dullness made out. Lungs negative except for wheezing râles in back. Voice normal.

Blood-pressure, Stanton instrument, by Drs. Sewall and Hall. Right arm, systolic 200 mm.; diastolic 130 mm. Left arm systolic 190 mm.; diastolic 130 mm.

With the fluoroscope Dr. Stover finds a pulsating tumor, similar to that noted in the preceding cases. The diagnosis is practically the same, excepting that the only injurious pressure is apparently upon the left subclavian vein.

March 9, 1906. This patient is still around the streets and in fairly comfortable condition. Röntgenogram (Clark, 1772) shows the shadow of the aneurism to the right and left of the central line.

CASE IV. Kane, male, waiter, fifty years of age. Syphilis at twenty-two years. Formerly worked hard and was rather a heavy drinker.

Two and a half years ago he became aphonic after a debauch. Since then dyspnea, cough, loss of flesh, weakness and inability to work have been noted.

Moderate dilatation of the left pupil has existed much of the time since I have had him under observation, now nearly two years. The left vocal cord has been in a cadaveric position during all this time. The arteries are quite atheromatous.

Dullness exists over a space two and a half inches across below inner end of left clavicle, and slight pulsation is felt through and through the chest at this point. No auscultatory phenomena. Heart slightly displaced to left, aortic second sound accentuated. Respiration is feeble on the left side and voice diminished. Marked tracheal tug and diastolic tracheal shock. Radical pulses equal and synchronous.

With the fluoroscope Dr. Stover finds a pulsating tumor in the region mentioned. The aneurism is probably like the others, situated in the transverse portion of the aortic arch. It has been almost quiescent for eighteen months past, and the patient has done light work during a part of this time. The sac is probably largely filled with fibrin, since the pulsation is much less marked than a year ago. The patient has been upon iodide treatment much of the time.

It is striking that he has had comparatively little pain during the whole course of the trouble. His blood pressure was below normal, but the exact figures have been mislaid. The urine was negative.

This patient lived in comparative comfort for about a year longer and died instantly from rupture of the aneurism. It was located, as mentioned, in the transverse portion of the arch, was about the size of the fist and was half filled with fibrin. It had ruptured into the very beginning of the left primary bronchus. Extensive atheroma of the aorta was present. In Roentgenogram, Kane, 1724, the very marked bulging of the aneurism to the left is well shown.

Aneurism is frequently overlooked because the signs and symptoms present such extreme variability, yet fortunately there are several manifestations of great weight to diagnosis, any one of which may excite our suspicions at once, and a careful search is likely to bring out confirmation in some form. We will study some of the prominent features of these four cases.

Pain was marked in one case, moderate in one, and little complained of in the remaining two. Even if bone be eroded it may be of little moment, or may cease after a pressure; neuritis gives way to complete destruction before the advancing tumor. It is more common in aneurism

of the anterior and posterior portions of the arch, since bone is more often eroded in these varieties. Yet in a recent case in this hospital in which a large aneurism projected through the ribs and sternum there was no call for relief from pain.

Dyspnea was present in all the cases, and severe in two. It may depend upon laryngeal trouble, which Dr. Levy will describe more fully; upon pressure upon the trachea; upon one or both primary bronchi; or upon the pulmonary artery obstructing the flow of blood to the lungs, and consequently impeding aëration of the venous blood; or upon the general obstruction to respiration from the size of the tumor. Destruction of the lung after pressure upon the primary bronchus, so common upon the left in aneurism of the transverse arch, with the paroxysmal cough so often seen in these cases, and the necessity of expectoration under such disadvantageous circumstances, may make the dyspnea more severe than it otherwise would be.

Cough was a feature of the two cases in which aphonia from paralysis of the left recurrent laryngeal nerve was present, the usual "goose-cough" of laryngeal paralysis. Choking spells were noted in these two patients.

The left pupil was dilated in Case IV, from irritation of the sympathetic upon that side. We should expect this symptom to be relatively more frequent in a large number of cases.

Weakness was complained of by all four patients, being the chief feature in two histories.

Edema of the feet and legs was notable in one case and slight in one, without recognizable kidney disease. It was probably accounted for in Case II by the communication of the aneurismal sac with the pulmonary artery and embarrassment of the venous return. In Case III, no cause beyond general weakness was found. It did not seem in either case that the inferior cava could have been pressed upon, as in certain cases of aneurism.

The heart was displaced to the left in every case, slightly in Cases III and IV; one inch to left of nipple in Case I, and two inches to the left in Case II. The latter patient had a marked systolic murmur at the apex, well transmitted to the left, and the apex beat was in the seventh space. Systolic thrill, common when the pulmonic artery is perforated, was noted all over the heart, obscuring other sounds greatly. The presence of marked pulsation in the neck and notable Corrigan pulse with the increased perpendicular area of the heart dullness led me to consider aortic leakage almost a certainty in spite of the absence of an audible diastolic murmur. The post-mortem evidence would indicate the leakage to have been due to relative incompetency. Aortic diastolic murmurs were found in Cases I and III, but Corrigan pulse was present only in the latter. The frequency of aortic leakage in aneurism is generally recognized.

The aortic second sound was accentuated in Cases I and IV, in spite of the fact that regurgitation existed in the former case. The leakage here was presumably insignificant. Systolic souffle

over the region of the aneurism was present in Case II, already mentioned, in most marked degree, and in Case I, in lesser degree. In Case III, over the aortic area, a diastolic murmur was also present, as noted above, and enlargement downward and slightly to the left was noted.

Through-and-through pulsation, a most conclusive sign when found, was present in all four cases. The absence of an external pulsating tumor in all of these cases made this sign the more valuable. In certain cases the movement of the anterior hand seems to be more easily seen than felt. I have never found this sign present in mediastinal tumor.

Marked tracheal tug was noted in all but Case III. If at all marked it is of great value. It is probably never present in marked degree in mediastinal tumor, though in its lesser degrees it is frequently found in full inspiration in those with pleural adhesions or even in normal subjects. It must be decided to be decisive, and when well marked must be regarded as of much value even by those who present many reasons against regarding it as pathognomonic.

Diastolic shock, felt over the tumor, has long been regarded as one of the most certain signs, especially in deciding between aneurism and solid tumor. When an external tumor exists, and notably in aneurism of the ascending arch, it is frequently one of the two or three most valuable signs. In an article in the *American Journal of the Medical Sciences*, January, 1900, Dr. Hall called attention to the value of tracheal diastolic shock as manifested in the trachea, and particularly in aneurisms of the transverse portion of the arch. The downward pressure of the expanding sac upon the left bronchus here frequently gives the tug mentioned above, and in at least half the cases we may perceive, as in Cases II and IV, the transmission of the shock of closure of the aortic valves, as a distinct diastolic shock transmitted to the cricoid cartilage, and felt by the finger instantly after the tug. It has been present in some of my cases when the tug was so indistinct as to be of no value. I have never found it present, excepting when the signs and symptoms pointed to aneurism. In at least four cases of solid tumor it was notably absent. So far as my experience of seven years goes I must regard it, when decided, as a certain sign of aneurism. I have long believed that, with a knowledge of this sign and of the tracheal tug, an agreement as to diagnosis might have been reached by Skoda and Oppolzer over their long-fought case.

The left radial pulse was absent in Case I, and slightly delayed in Case III. In this latter case the systolic pressure on the left was 10 mm. less (190) than on the right (200), though the diastolic pressure, as taken by Dr. Sewall, was (130) on each side. In the other cases the blood pressures, systolic and diastolic, were normal or but little below normal, and equal upon both sides.

Dullness was present in Case I over the manubrium and inner end of left clavicle, in Case II over upper sternal region only, in Case IV over

inner end of the left clavicle only, and none was made out in Case III. It is a notable fact that even in large aneurisms no dullness is found in a certain number, for the sac is so centrally situated that the wall of the chest is not affected. O. A. Browne has analyzed 35 cases of aneurism of the transverse portion, in only four of which did the tumor show to the left of the center, so that our cases are probably rather exceptional in showing the dullness to the left in two cases out of four.

In Case IV only were the respiratory passages notably involved, the left bronchus being pretty well shut off in this one. Death resulted, as noted above, from rupture into this bronchus, as so frequently happens in these cases.

Pulsation was felt in the notch of the sternum only in Case II.

Dysphagia was conspicuously absent. It is more common in aneurism of the descending portion. A pulsating tumor was found by Dr. Stover in every case. The x-ray is of immense value for diagnosis in this disease. Dr. Stover recently showed a case at the Staff Meeting of the Denver City and County Hospital in which an aortic aneurism was found in a case about to be operated for prostatic hypertrophy, and which had been sent to his department entirely by mistake. (See Sherman, 2198.) No other sign or symptom could be found by any of the staff, yet the shadow to the left was unmistakable. This diagnosis has since been confirmed.

Syphilis was admitted in Case IV, was almost certain in Case II, and was denied in Cases I and III. Palpable atheroma was present in all but Case II, and no note was made in his case.

Notable venous obstruction was present only in Case III, in which the left subclavian vein was obliterated by pressure. No especial trophic changes were noted in the left hand, such as thickening of the skin of the palm and of the nails, as in a recent case of mine, though they may yet develop.

No one of these patients showed the enormously thick neck, scarcely mentioned in the literature, yet so characteristic of certain types of aneurism, notably of the ascending aorta, from obstruction of the superior vena cava. In a recent case seen with Dr. Matt R. Root, of Denver, presenting this sign, the eyes were so swollen as to become closed, the right arm was visibly larger than the left, and the trophic changes in the hand were present. The dilated veins over the chest and abdomen shown in the accompanying illustration (No. 1) finally established so good a collateral circulation that the patient was able to resume work for about two years, eventually dying of rupture of the sac. The entire venous blood normally flowing through the vena cava superior was apparently carried to the heart by the inferior vein in this case.

Neither pallor from irritation of the sympathetic nor flushing from paralysis was noted in these cases. Both may be present in the same case, upon opposite sides at the same time, as in a case seen by me with Dr. H. W. Rover, of Denver, in

which the right ear and side of face were extremely red with contracted pupil, the tumor having presumably destroyed the last cervical or first dorsal sympathetic ganglia or both, or the cilio-spinal branches, by pressure, while the left ear and cheek were very pale, extreme sympathetic irritation upon that side being the cause.

There was no evidence of involvement of the thoracic duct in any of these cases.

It is possible to have the pressure of the sac so distributed as to cause the most puzzling combinations of signs and symptoms. Thus in a case now in the service of Dr. Chas. A. Graham, at this hospital, the left vocal cord is paralyzed, the right radial pulse is obliterated, the veins of the left arm obstructed as in Case III, and the lumen of the left bronchus is apparently almost obliterated by pressure. The heart is displaced two inches to the left. Tubercle bacilli are found in small numbers in the sputum, though there are no known tuberculous antecedents. The Roentgenogram (Peel, 2277) shows the shadow of an aneurism on the right side, according to the rule as found by Browne, above quoted. The pressure of the aneurism is distributed in a most unusual manner. The left bronchus may possibly be pressed upon by a tuberculous gland and not by the aneurism.

In Case IV, the first symptom was the aphonia, coming on as he recovered from a spree. The onset was gradual in all of the others. In a case seen some years ago with Dr. C. P. Conroy, the aneurism of the transverse arch developed in a few hours after a violent lift, in a man of thirty-eight years. Rupture of the media was found at the post-mortem, doubtless caused by the sudden strain.

In a case recently seen with Dr. Hershey, we were long in suspense as to the diagnosis between aneurism and enlarged bronchial glands following an attack of pneumonia. Profuse expectoration containing many pneumococci, and

terrible suffocative attacks, were prominent features. The latter were explained at the post-mortem by the presence of a perforation of the trachea by an aneurism of the transverse and

descending portions of the arch of the aorta. A mass of large, firm, black bronchial glands, some of them over an inch long, was found anterior to the sac, while a condition of aneurismal phthisis existed in the left lung. In similar manner I

have seen aneurism of the aorta and cancer of the esophagus present in the same case, giving rise to the utmost confusion of symptoms. We should remember the possibility always of two separate conditions in such cases.

In addition to the illustrations of the cases cited, Dr. Stover presents several other Roentgenograms: that of "Oliver, 1866," showing a large aneurism of the more common type. "Fucht, 2199" is

shown on account of the very large size of the tumor. That of "O'Brien, 2142" shows the shadow high up and to the right.

The treatment in all these cases has been by rest, low diet and the giving of iodide of potash over long periods. None was suitable for wiring, electrolysis or other surgical measures.

BY DR. LEVY.

As you may have gathered from what Dr. Hall has stated, the diagnosis of aneurism of the aorta is not always easy. Careful examination of the larynx will frequently clear up the diagnosis, and

in any event will be of decided value. Certain points in the anatomy and physiology of the larynx must be carefully borne in mind. Its two important functions are those of respiration and phonation. The respiratory function of the larynx is made possible by the action of the posterior thyro-arytenoid muscles, which abduct the vocal bands, while the function of phonation is made possible by the lateral thyro-arytenoids, which adduct the vocal bands assisted by other less important adductors and tensors. The nerve supply of the larynx is principally the superior laryngeal and the inferior or recurrent laryngeal branches of the pneumogastric. The latter concerns us more especially in this connection. An anatomical feature of great importance is the course that the pneumogastric and the recurrent laryngeal take upon the two sides of the neck. Upon the right side the vagus passes in front of the subclavian and the recurrent given off upon this side passes the subclavian artery, returning upwards in a groove between the esophagus and

is a moderate amount of dyspnea, marked, however, upon exertion. During rest and tranquil respiration there may be detected a slightly noisy inspiration. This symptom is due to a paralysis of the respiratory muscles of the larynx, namely,

the posterior crico-arytenoids. These muscles abduct the vocal bands, thus enlarging the chink of the glottis and permitting the air to pass freely through the larynx. When these muscles are paralyzed upon one side, the adductors having no antagonist in their action hold the vocal band of that side in the median line. This fact accounts

trachea to its laryngeal distribution, which included all of the intrinsic muscles of the larynx upon that side except the thyro-arytenoid. Upon the left side the pneumogastric passes in front of the transverse arch of the aorta, at which point the recurrent laryngeal is given off to pass beneath the arch and upwards in a groove corresponding to that upon the right side, to its ultimate distribution in the larynx, namely, all the intrinsic muscles of that side, except the thyro-arytenoid. It is apparent from the course of these nerves and their distribution, that an aneurism of the arch of the aorta would produce pressure upon the left pneumogastric, the left recurrent laryngeal or both, while pressure upon the right pneumogastric or recurrent laryngeal will be produced by an aneurism of the subclavian. These are not the only conditions which may produce disturbance of the recurrent nerves, for tumors of various kinds situated in the course of the pneumogastric, in the neck or of the recurrent laryngeal will also give rise to disturbance in the function of these nerves.

The first laryngeal symptom of aneurism refers to the respiratory function of the larynx. There

for the almost normal voice in the early stage of recurrent paralysis. The reason that the abductors are first affected is a much mooted question, but the majority of laryngologists have accepted the explanation of Sir Felix Semon, which he formulated a few years ago in what is known as Semon's law. This author believes that there is a "difference in the biological composition of

the laryngeal muscles and nerves," which makes the abductors more susceptible and causes the symptoms of slight pressure to manifest themselves in the nature of interference with the respiratory function.

In a certain proportion of cases the stage during which the abductors alone are involved is extremely short or does not exist at all. This is particularly true of cases in which the enlargement of the aorta occurs itself suddenly or is principally in the anterior wall of the aorta. Here the pressure is made almost complete at once and involves the pneumogastric as well as its branch, the inferior laryngeal. The symptoms of increased pressure are those of complete paralysis of the recurrent laryngeal, namely, the loss of motion of all of the intrinsic muscles of the larynx except the thyro-arytenoid. These muscles include the adductors, the principal of which are the lateral crico-arytenoid, the internal thyro-arytenoid, the tensors, and the arytenoid. It is obvious, therefore, that when the nerve is completely paralyzed and both abductors and adductors fail to act, that the vocal bands be neither abducted nor adducted, nor will they be made tense, but will rest in a position midway between abduction and adduction and be lax. This position of the vocal bands is what is known as the cadaveric position.

The dyspnea in the case of Kiler may be explained either by pressure on the trachea or bronchi, or it may be due to so pronounced a pressure upon the pneumogastric that the irritation is transmitted to the center in the medulla, then to the opposite side, causing spasm of the opposite abductors. In this way pressure upon one pneumogastric will cause marked bilateral manifestations, especially giving rise to laryngeal dyspnea.

It is important to recognize whether that dyspnea be due to this cause or to pressure upon the trachea or bronchi. If due to the former, tracheotomy will relieve the urgent distress, and if due to the latter, opening into the trachea will be of no avail.

As has been seen in the case of the man Kane, the voice while aphonic from the beginning has gradually improved. This is not an uncommon manifestation, but should not be construed to mean improvement in the actual condition. One vocal band may be completely paralyzed, remaining midway between abduction and adduction, while the other in course of time takes on compensatory action and passes beyond the median line to closely approximate the paralyzed band. When this exaggeration of the unparalyzed vocal band takes place, the voice begins to return, and while the patient will never have a normal voice, he will nevertheless be able to phonate better than early in the affection. There is marked distress during prolonged phonation due to what might be called respiratory loss. The chink of the glottis being larger than normal every act of phonation permits an increased loss of breath and the patient becomes rapidly exhausted in an attempt to use his voice.

AN ANALYSIS OF TWENTY-ONE CASES OF PELVIC ABSCESS TREATED BY VAGINAL SECTION.

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The following article has for its object the consideration of 21 cases of vaginal section for pelvic abscess in which the end results are known. They have been collected from the cases treated at the Boston City Hospital and from private practice. Hospital records show the immediate results of operation; but as a rule our patients disappear at once on leaving the wards or after a few visits to the Out-Patient Department. For this reason the end results are seldom apparent.

The responses to our requests for information from hospital patients have been few, as out of about 100 inquiries, only 13 replies have been received. All have been examined personally; but in speaking of the end results, four are mentioned from whom reports have been received. It must be borne in mind that the impression conveyed by such a series of hospital cases is often really worse than the actual truth, as many are traced after discharge, only from the fact that they have improved slowly. The greater number of those making good recoveries disappear.

The "end results" we have considered as the condition of patients at the time when the maximum benefit from the operation was apparently attained. In one or two instances it may be considered a little doubtful whether they have quite reached this stage; but in general, we believe this period has been reached.

General Considerations.—Vaginal section for the evacuation of collections of pus in the pelvis has long been recognized as an operative procedure having less danger in acute stages than ordinary abdominal section; but at the same time, opinions have varied as to the lasting results obtained by this method alone.

The bacteriology of the pelvic abscess is often unsatisfactory, as there are numerous accidental means by which a swab may be contaminated, and, furthermore, many are reported sterile. Any classification on a purely bacteriological basis seems impracticable.

In a clinical sense, these abscesses may be divided into three classes: first, those arising shortly after gonorrheal infection; second, those which appear at some more or less distant period after gonorrheal infection; third, those following puerperal sepsis. Regarding the second class, we must allow that such abscesses may be due to the lighting up of old quiescent foci or a new infection by a different organism, regulated more or less by the resistance of the individual and started, perhaps, by some traumatism. The rare infections from the appendix and tuberculosis are not considered. Certain of the acute gonorrheal cases progress at once to abscess; but many do not go so far, and leave in their wake lasting discomfort, pain and repeated attacks of pelvic peritonitis. Often the amount of pus