

When the general practitioner attempts to use the forceps, he may do harm, but in the operation I have described he is not likely to do any damage to the adjacent tissues.

THE DEGENERATE TONSIL.*

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Ablation of hypertrophied tonsils is a procedure which has become generally indorsed by the profession of medicine, though in earlier years its advocates were less numerous and many sturdy opponents contended that the proper course to pursue was to patiently await Nature's cure by absorption or, as most often worded, until the patient would outgrow the trouble.

It is not strange, when even physicians indorsed such practice, that patients easily became converted thereto, particularly as the natural tendency is toward procrastination in matters pertaining to health. Eventually some of the more pronounced evil results due to enlarged tonsils became so patent that procrastination was forced to give way to operative treatment, though many of the lesser evils due to this cause, not being thus recognized, were neglected, and the patient later became a serious sufferer thereby.

Through the so-called process of absorption different results and structural formations follow in different cases, and hence in later years different forms of tonsillar mal-condition are met with. I have therefore employed the term "degenerate" to cover all of the ordinary or commonly-met chronic conditions of tonsillar disease, which classification would seem warranted by the fact that the same treatment, total tonsillectomy, is equally applicable to all and offers the only absolute and permanent cure obtainable.

One characteristic feature observed in the process of degeneration is that the protrusion becomes less and less pronounced, though, when the examination is properly made, it will be found that the diminished protrusion is largely due to a transformation into submersion. In other words, the bulk of tonsillar tissue has not been so materially lessened, though through the submersion the faucial space has become enlarged, hence a superficial examination can easily give the impression that Nature's cure has been effective.

During the process of submersion there is a gradual absorption of the hyperplastic or lymphoid element, and consequently a relative hypertrophy of the follicular element of the tonsil, and this evolution, which may progress for many years, is constantly accompanied by and undoubtedly produced through a low grade of chronic inflammation generally manifested by the discharge of a cheesy secretion from the crypts which is continuously taking place, and which, when most noticeable, is known as chronic lacunar tonsillitis.

While in early life the greatest bulk of the enlarged tonsil protrudes above the plane of the faucial pillars, and in rare cases is entirely above this plane, it is a fact in a very large majority of cases, in even the youngest patients seen, that as much of the tonsil is concealed by submersion and pillar attachment as is apparent through protrusion. This fact is often revealed after an ordinary tonsillotomy, when the remaining base is clearly visible, and through the eventual enlargement of this base we can easily account for the many reported

cases of reproduction of the tonsil after a tonsillectomy.

In combination with the condition of tonsillar submersion there is generally present an adhesion of the anterior pillar thereto, which pillar is often hypertrophied and extends backward so as to constitute a covering over the tonsil to which has been given the name *plica triangularis*, but which I am inclined to regard as an anatomic name applied to a pathologic product, it being simply a hypertrophy of the mucous membrane of the pillar. The posterior pillar is also at times hypertrophied and adherent to the tonsil, and in some cases degenerated into a tissue having the same appearance and texture as the tonsil itself.

One of the earliest writers who called attention to the deleterious effects of the enlarged tonsil when not protruding was Yearsley, who, in a brochure on "The Enlarged Tonsil and Elongated Uvula,"¹ published in London over a half century ago, emphasized the pathologic importance of and the urgent necessity for thoroughly removing such tonsils, largely on account of their bulk, and therefore their mechanical effect on the eustachian tubes, thereby being a cause for ear disease. He says: "Sometimes when only a small amount of tonsillar disease exists it will occasion thickening of the contiguous mucous membrane of the eustachian tubes" (p. 41), and "in some instances when nothing morbid was visible in the throat the upper part of the tonsils has been of such magnitude as to produce deafness" (p. 38).

It will be apropos to quote his description of the non-protruding tonsil, which reads as follows: "There is another variety of enlargement which I am not aware has ever before been noticed; it is where the diseased growth is confined to the upper margin of the tonsil, and which, from being hidden behind the veil of the palate and the anterior palatine arch, is quite out of sight when the throat is merely examined by the eye (p. 38). . . . In many instances the induration is altogether absent and the diseased glands are so soft as to break down repeatedly if grasped by a forceps (p. 17). . . . In adults a general thickening of the mucous membrane of the throat without any particular implication of the tonsils is often observed" (p. 10). Yearsley, in place of the tonsillotome, employed an angular bistoury, bent on the flat, whereby he claimed the entire tonsil could be cleanly dissected out.

After Yearsley for many years but little attention was given to the tonsil beyond the ordinary tonsillectomy for simple enlargement. Shortly prior to 1890 Bosworth,² Harrison Allen,³ Maxwell,⁴ Lennox Browne⁵ and Roe⁶ have all described various pathologic manifestations associated with diseased tonsils when "unattended by hypertrophy," and since 1890 many medical writers have dealt with the several mal-conditions of all of the tonsillar tissues and have suggested various methods of treatment, ranging from the expectant to the aggressive.

The pathologic importance of the supratonsillar fossa as a hotbed of pyogenic organisms, and of the so-called *plica triangularis*, so often adherent to the tonsil, whereby follicular debris is imprisoned, has been particularly described by Paterson⁷ and Hartz,⁸ who, through report of cases and otherwise, have given ample proof of their instrumentality in the production of various local and systemic infections. Among American writers Winslow,⁹ Emil Mayer¹⁰ and Packard¹¹ have all added their evidence to this proposition, combined with arguments which should be convincing, and Ullman,¹² in an elaborate paper in which the literature of the subject is

* Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. Emil Mayer, C. R. Holmes and G. H. Makuen.

critically considered and 68 references cited, finds that the tonsil, being often diseased, is the "nidus for the growth and distribution of pathogenic organisms and their poisonous products in the system, and that many grave and fatal general infections have their origin therein."

It may be said, *en passant*, that the more submerged or deeply buried the base of the degenerate tonsil is the more diseased it will often be found to be. In the removal of such tonsils small, latent abscesses are frequently found at the deeper points, and their presence would naturally suggest the possible erosion of adjacent small vessels whereby infection might be drawn into the circulation and thus affect distant organs. Systemic infection also occurs through the course of the lymphatics.

Retained secretions in the supratonsillar fossa may, at any time, develop either a follicular tonsillitis, or a peritonsillar abscess, the form taken being influenced by the structural formation of the parts, or the direction of least resistance in any given case, and as the cellular tissue of the fossa often continues downward to varying distances in different subjects, a quinsy may develop at any point thus reached. In fact, the graver phlegmonous anginas are probably thus produced.

As the fossa becomes a cesspool for discharges from the superior tonsillar crypts it should, during a tonsillectomy, be thoroughly exposed and eradicated in order that the operation shall give perfect results.

Susceptibility to recurrent attacks of acute tonsillitis is probably the most annoying feature associated with chronically diseased tonsils, though a simple irritation or rawness of the throat, which goes no further, is more often observed. In fact, in a large majority of cases the patient is thoroughly unconscious of the presence of any tonsillar trouble.

The injurious effect on digestion due to the swallowing of diseased tonsillar secretions was observed by Yearsley (p. 35), and that such gastric disturbance is due to direct infection from germs in the naso-pharyngeal secretions has latterly been demonstrated by Turk.¹³ Chronic bronchial catarrh as a result of drawing into the lung tubes morbid secretions from above was also noted by Yearsley (p. 35), whose teachings have been for many years apparently forgotten, though the same conclusion has, in recent years, been arrived at by others, and most notably by Ballenger,¹⁴ who finds that catarrhal irritation of the lung tubes extends to the air vesicles and causes a thickening in the walls thereof which obstructs the osmotic action whereby the blood is both oxygenated and purified. In this way we see an explanation for impaired general health as well as for cough or asthma, should either be complained of.

As the fetid caseous tonsillar secretions, both by physical and microscopic examination, are richer in morbid material than is the usual post-nasal discharge, it seems warranted to give credit to the tonsillar secretions for the bulk of damage done the system through either the pulmonary or intestinal tracts.

Another result of the degenerate tonsil not infrequently observed is tenderness or swelling of the cervical glands. This latter symptom is regarded by McBride¹⁵ as an urgent indication for a thorough tonsillectomy on account of the possibility of tubercular infection.

Submerged tonsillar tissue, whether the result of absorption or the aftermath of a tonsillotomy, occupies a material space, which may be roughly estimated at one cubic inch on either side, and is therefore a mechanical obstruction to vocalization, particularly as by

binding together the faucial pillars free mobility of the soft palate is impaired so as to limit the maximum size of the posterior passage to the nasal chamber. Yearsley, at his early day, remarked that "when the morbid growth extends upwards and interferes with the motion of the soft palate, or encroaches on the cavities of the nose, the voice becomes nasal" (p. 23), and, furthermore, that with public speakers who are troubled with dysphonia "in nine cases out of ten the tonsils or uvula are the cause of the malady" (p. 22).

While many of the chronic diseased conditions of the tonsil possess individual characteristics under microscopic examination, the importance of differentiating the several varieties which have been described is much diminished by the fact that any and all of the simple chronic forms of tonsillar disease are equally amenable to the same treatment, viz., that of thorough eradication, and in my experience nothing less than this radical step is to be advised, as no patent argument can be advanced for the partial retention of a diseased gland, and the invariable beneficial after-results following a thorough tonsillectomy demonstrate the fact that the total loss of the faucial tonsils does not, in any way, impair the integrity of the economy.

In the examination of a throat wherein degenerate tonsils are present, a heightened color or increased redness of the fauces is first noticed, and an arched line leading downward on either side from the base of the uvula is invariably observed. This line curves downward on either side near the vertical center of the more or less hypertrophied anterior pillars, and quite clearly outlines the top and anterior edge of the submerged tonsils. The forward ends of the arched line are made more distinct by causing the patient to gag, at which time the line of demarcation between the red within and the pink outside thereof becomes more clearly visible.

While the patient is gagging the outlines of the submerged tonsil can be easily recognized through or beneath the anterior pillar, and by traction on the tonsil when grasped by a suitable forceps it can often be made to move about beneath the anterior pillar so its outlines can be seen to change. Pressure on the tonsil at this time with the finger, or with a suitable blunt instrument, will generally cause the escape of a muco-purulent secretion, or of "cheese balls," which, when flattened by pressure between the thumb nails, emit a fetid odor. Frothy saliva often covers the parts and with the new patient the fauces are generally hypersensitive, though the sensitiveness can usually be overcome by the frequent practice of a drill in faucial manipulations so that after a few days a sufficient tolerance is attained to permit of operative treatment.

As no tonsillotome yet made is efficient in completely removing the tonsil as usually met, and particularly in case of the submerged or degenerate tonsil with which this paper deals, other methods of operating have been practiced, as the use of the bistoury or the shears. It is not to be denied that a complete removal of the tonsil can be attained by either of these methods, though the unavoidable feature of hemorrhage necessarily interferes to a material degree with the thorough removal of all abnormal tonsillar tissue on account of its obscuring the field work. Additionally with the hemorrhage the anesthesia soon passes away when a local anesthetic has been employed. As the necessity for removing all of the follicular element is imperative in order to obtain the maximum benefit of the operation, I have for the past twelve years been using the electrocautery as the dissecting instrument instead of the bis-

toury, and I, in this way, obtain the following advantages, viz.:

1. A practically bloodless field so all of the diseased tonsillar tissue can be cleanly removed.

2. Owing to lack of hemorrhage no loss of the local anesthetic.

3. By the cauterization a destruction thereof should any portion of the follicular element escape the line of dissection.

The time limit will not permit of my describing in this paper the steps of the operation which has been elsewhere described at different times (see Bibliography, Nos. 16, 17, 18, 19 and 20), and which I have employed on more than a thousand occasions.

By this method of operating the tonsil generally peels out with facility, and often bloodlessly, the incisions being as though cutting through cheese, though in some cases sclerotic tissue is encountered which gives a sensation more like that of cutting leather. I might add that in the removal of an enlarged fibrous tonsil, the form of tonsil in which fatalities from hemorrhage after an ordinary tonsillotomy have been most often reported, this method of operating by "electro-cautery dissection" gives the greatest promise of immunity from that complication as the line of incision is outside of the area of sclerosis.

My results have been ideal and have generally yielded a throat with fauces pink instead of red, a throat with mobile and approximating pillars, which with vocalists has enhanced the high register by two or three notes, and a throat the tonsillar region of which is never afterward the source of pain or discomfort to the patient. Furthermore, there has generally been an improvement in the nasopharyngitis, and in the tubal catarrh should such conditions have previously existed, and the same may be said concerning gastrointestinal disturbance or chronic bronchial catarrh, and lastly with singers there has followed a diminished tendency to recurrent laryngitis. It will, of course, be understood that all deformities or troubles of the nose or nasopharynx, when such were present, were also corrected.

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DISCUSSION.

DR. J. F. BARNHILL, Indianapolis—Until recently a large per cent. of the tonsillotomies, even by men in the specialty, were imperfectly done for the reason that the instruments used were nearly all some kinds of tonsillotomes. The class of cases which Dr. Pyncheon described in his paper is one in which the tonsillotome can not be successfully used. If one attempts to use this instrument in such a case, he simply cuts off the top of the tonsil. I have been in the habit of classifying tonsils into two very broad divisions: one in which we remove the glands for the reason that they produce obstruction to breathing, and the second in which we remove them because they have infected pockets and are, therefore, the source of periodic or possibly constant inflammation.

Coulter removes part of a tonsil at a time, with electricity, dissecting it away. These tonsils are always adherent, and my method has been to dissect them away from the pillars, by electricity, so they can be lifted off easily, and then snare them away en masse. It is to me much easier and quicker; possibly to Dr. Pyncheon it might not be. I have never followed the method of removing a part at a time and thus extending the operation over some thirty or forty days, as has been described by Dr. Coulter. I have always removed them at once and I have never had occasion to regret doing the entire operation at one sitting. I believe the value of the method described here comes not only from removing the tonsil crypts but also from the fact that we free the pillars of the fauces, which are muscular organs, and thereby we give greater freedom to the organs of voice.

DR. ALBERT H. ANDREWS, Chicago—Dr. Pyncheon is the originator of this plan of operation. Dr. Coulter's description and use of the method was several years later than Dr. Pyncheon's first publication of it. In the classification of chronically-diseased tonsils three divisions is all that seems necessary: first, simply inflamed tonsils; second, hypertrophic tonsils; and third, atrophic tonsils. This classification is in accord with the well-known pathologic changes resulting from chronic inflammation in other parts of the body. In the first division, the simple inflammation, the blood-vessels are congested and the tissues engorged, but there is no structural change in the tissue. In the second division there is a proliferative change in the tissue, and in the third division the connective tissue is contracted and the lumen of the vessels is lessened, and with the lessening of the blood-supply there comes atrophy. The third division is the degenerate tonsils Dr. Pyncheon mentions. In removal of the tonsils I have not used the method Dr. Pyncheon describes because I have not as yet had occasion to find any fault with the method I have been using. If I believed Dr. Pyncheon's method better, taking all things into consideration, the pain produced and the time it is necessary to subject the patient to the discomfort of that operation, I would use his method. To my mind, however, it is not justifiable. My method is first to liberate the tonsil from the anterior and posterior pillars. I pass an angular knife down first between the tonsil and the anterior pillar. Adhesions between the tonsil and anterior pillar are usually more pronounced than between the tonsil and the posterior pillar. After the tonsil has been liberated from the pillars, I care not how deeply submerged it may appear to be, if it is caught by a double tenaculum forcep, it can be pulled outward from between the pillars and cut off. I sometimes use scissors and sometimes a tonsilotome for this purpose. As regards pain and hemorrhage, if pledgets of cotton saturated with a solution of cocain are pushed into the crypts of the tonsil and around behind the tonsil for a few moments, and then pledgets of cotton introduced into the crypts saturated with adrenalin, the hemorrhage will be exceedingly slight and the pain hardly worth mentioning. I wish to speak against the method which I would call "tonsil snatching." There is no necessity for hurry in these cases. If the patient is a child and will not hold still so you can do the right kind of operation, give him an anesthetic and operate with care. Thorough removal of the tonsil will be followed by satisfactory results, whether the removal is accomplished by scissors, tonsilotome or the galvanocautery. I was struck with one statement Dr. Pyncheon made, that if portions of the tonsils were accidentally left the cautery would destroy them. If the cautery will destroy the base of a tonsil accidentally left why will it not destroy adjacent normal tissues when the entire tonsil has been removed?

DR. D. A. KUYK, Richmond, Va.—Those of us who have read Dr. Jonathan Wright's articles on the effect of the electro-cautery on the nasal mucous membrane, for he says the effect of the cauterization is so great, extending so far beyond the point cauterized, entirely beyond our power to limit it to any given surface or area, would hesitate before ablating the tonsil with the electro-cautery. The large area cauterized might cause subsequent cicatricial contraction with no means in our

power to limit it, involving perhaps the palatine pillars causing perhaps alteration in vocalization that might be most unfortunate in singers, elocutionists, public speakers, etc. I have a case in point in which this very effect resulted.

Cicatrization caused contraction between the anterior and posterior pillars; they were twice severed, but recurred, the patient declined any further treatment and left with considerable impairment of the voice. This result may have been my fault, but every possible precaution was used, everything was done to stay the cicatricial contraction, but nothing availed.

DR. WILLIAM L. BALLENGER, Chicago—I have seen probably 25 per cent. of Dr. Pynchon's cases, in all stages of operation, and I have seen him operate. I have seen a number five, six or seven years old, and I will say I have never seen any results that compared with those obtained by Dr. Pynchon. He gets the most beautifully clean-looking throat I have had the pleasure of looking into. There is no evidence of undue cicatricial formation. Judged by its results, it is certainly an ideal method. But I have not felt inclined to use it extensively because it requires from four to six sittings to remove two tonsils, and there is considerable inflammatory reaction in some cases; in others there is very little. If one should, in the course of the operation, burn the muscular fibers of the anterior or posterior pillars, there might be some serious complications interfering with the use of the voice. It seems to me that accident would result only from the lack of experience in the use of the method. In none of the cases I have seen has that resulted. My own method for the complete removal of the tonsils, which I prefer in adult cases and in the cases which Dr. Pynchon has denominated the submerged cases, is to dissect them out with the knife. If the adhesions are not extensive this is an easy matter. Often I find the adhesions very extensive, not only in the region of the posterior and anterior pillars but in the pharyngeal aponeurosis as well, and in some of those cases it requires considerable care to separate the adhesions. But it can be done and the tonsil removed very completely. If there are no adhesions, then the tonsil can be enucleated practically with a dull instrument, such as the handle of the knife, for instance. Dr. Beck was present when I removed a tonsil in this way. It leaves a smooth pocket and probably would give results as good as Dr. Pynchon has secured. By this method I can remove two tonsils at a sitting and save my patients and myself considerable work and some pain. I have used cocaine anesthesia in this operation, the strength of the cocaine solution ranging from 10 to 20 per cent. With the 20 per cent. solution, however, I have had in a few cases considerable cocaine poisoning. Usually I do not use a solution stronger than 10 per cent. As a rule the patients say it does not hurt or that it hurts very little.

Tonsils are removed for other purposes than because they are degenerated or adherent or for the purpose of improving the voice. The posterior pillar is the palato-pharyngeus muscle, that is, it contains this muscle, the fibers of which extend up to the mouth of the eustachian tube and control more or less the patency of the tube, and so we may remove the tonsils to improve tubal and middle-ear disease as well as to improve the voice. Mackenzie and Curtis have said that they never observed anything but improvement of the voice from removal of the tonsils. I certainly have not, and some of Dr. Pynchon's patients who were singers, declare that they have only secured a good effect in this way. I would only say of his method that it probably requires more skill than some of the other methods, but nobody could get better results than Dr. Pynchon obtains.

DR. J. C. BECK, Chicago—Dr. Pynchon and I work almost side by side, and have worked for two years in the same clinic. I see his cases often and know his results. I am asked by the students often about his operation, and in order to be able to answer intelligently I have done his operation a number of times. After he has operated—and he has operated on a considerable number of physicians—his patients come back and say that they have been benefited very much. That is a good while after the operation. For the first week the patients, including the physicians he has operated on, complained bit-

terly of the pain from the operation, whether it was done in one sitting or two. The reaction following the use of the cautery is very marked. There are symptoms of sapremia that make the patients very ill. The results from the operation, nevertheless, are good.

The Doctor removes the pillar. He says part of the pillar is degenerated with the tonsil and should be removed. I have satisfied myself that this part of the pillar has some use, and I do not remove it. It has muscular fibers in it, and I am opposed to its removal. I have seen cases the Doctor has operated on, in which the posterior pillar was very much hypertrophied, probably from taking on some of the action of the anterior pillar. Sometimes a layer of the pillar comes over the anterior surface of the tonsil and may be mistaken for the pillar, it is the plica tonsillarum, and its removal, aside from that, is a tedious, unnecessary operation. Dr. Pynchon teaches his pupils to do the operation very easily, but it requires considerable teaching of the patient so that he may hold the tongue depressor, and the constant holding and the fight they make in doing the operation sometimes is very annoying. I treat these degenerated tonsils by slitting the ducts. By this I often do not succeed, but sometimes there is very great amelioration of the symptoms. For the removal of them I use punch forceps much similar to Dr. Myles' punch, only it is square, and I excise the tonsils with knife or scissors. One thing in favor of cauterization is the prevention of bleeding. It has been said that the bleeding is not much, and that the adrenalin, etc., will stop it, but sometimes it is considerable, and if the use of the cautery will avoid this danger it is something in its favor.

DR. G. HUDSON MAKUEN, Philadelphia—One of the speakers has said that Dr. Pynchon advises an operation extending to the removal of a portion of the anterior pillar, but I have not understood this from his paper nor from his previous writings. The opercular fold is not a part of the pillar, although it has muscular fibers in it. It is a part of the tonsil rather than of the pillar. The removal of any portion of the anterior palatoglossi muscles would be bad surgery, for it would change their length and thus interfere with their natural functions. I would like to ask Dr. Pynchon what he does with the opercular fold, which sometimes forms a mass larger than the tonsil itself. I have sometimes removed it. It is very vascular and it contains muscular tissue.

DR. P. J. GIBBONS, Syracuse, N. Y.—Tonsils that often are removed may be treated conservatively by stripping them from adhesions to the pillars and then treating with iodine, camphor menthol or nitrate of silver. Bosworth has told us that the tonsils never will bleed too much, therefore let them bleed. Later Bosworth got up a snare for the removal of the tonsils, evidently he must have thought there was reason for it. I tried chopping everything off. But I saw some hemorrhages that were rather alarming. Then I used a tonsillotome, which I first dulled. If you are going to take out the tonsil by piecemeal, you can do it with the snare, and still better with the cautery. If you want to remove the entire tonsil with the cautery there is everything in knowing how to use the electro-cautery. Of course, an inexperienced man might do a great deal of harm in this way. I would encourage a little conservatism in removing the tonsil. Sometimes it is sufficient to remove it only partially. I refer now to the small tonsil that we may retain. There is a function for everything in the body, even the appendix, more than for the surgeon to operate on.

DR. GEORGE F. KEIPER, Lafayette, Ind.—We ought always to remember, in removing the tonsil, no matter what method we use, if we get the bottom of the crypts we will accomplish everything desired in its removal. I have been doubtful in the cases of alleged total removal of the tonsil that I have seen as to whether the tonsil has been entirely ablated. I have, however, never seen any of Dr. Pynchon's results.

DR. EDWIN PYNCHON, Chicago—Owing to the time limit I did not attempt to describe the operation in my paper or touch on the technic thereof. I have, however, brought with me the instruments I use, which it may interest you to see. In the

cautery handle I have the contact arranged on the outside so that it may be readily kept clean. I have had the ends of the electrodes made large so that the electrode is held more firmly in the handle. Platinum is not so good, I have found, as irido-platinum, which you may heat red hot and it will still retain its shape. These electrodes and the handle are made by F. A. Birtman & Co. of Chicago. I have here also a tongue depressor which enables the patient to hold down his own tongue. And here are some forceps I find very convenient for grasping the tonsil. Several of the objections made by the gentlemen were already met in the paper which they did not hear, as they came in too late. Dr. Myles, this morning, mentioned the inefficiency of the tonsillotome in removing the tonsils. If any of you desire to become familiar with this operation, I will take great pleasure in sending you a description thereof in a reprint. It was not the purpose of the paper to deal with the enlarged tonsil, which is of annoyance chiefly as an obstruction. Its follicles are very small, and it is simply an obstruction, and that is all. Follicular hypertrophy is found in the degenerated condition of which my paper treats. As to Coulter and myself, I reported the operation in 1890, and Dr. Coulter, I believe, began doing the operation about five years later and has become quite enthusiastic over his results. He has done good work. One of the physicians thought it was a septic inflammation which follows the removal of the tonsil in this way; it is not a septic condition, but a burn; an eschar made to keep out sepsis. After the operation I apply a 20 per cent. solution of nitrate of silver and thus make a coating over the wound. I originally took out the entire tonsil at one sitting and sometimes had hemorrhage therefrom. Now, since dividing the operation in two steps, I do not have much hemorrhage. Anybody who does radical work on the tonsil will have an occasional hemorrhage. The hemorrhage I got was chiefly a capillary hemorrhage. There was no point of spurting. I found the motion of the tongue assisted somewhat in the production of hemorrhage, so I took out one half of the tonsil at a time. The greatest amount of expertness is required in removing the upper half. There is hardly any hemorrhage from removing the lower half, nor is there much pain. Nowadays, when I see a little bleeding point, I cauterize that point and apply nitrate of silver. In this manner I can do a practically bloodless operation. Most of the bleeding is where the forceps take hold of the tonsil, to pull it out of its bed, but this amounts to only a few drops. The after-effect of the cocaine may cause some secondary hemorrhage, but now I generally avoid that. The time required for the operation depends largely on the dexterity of the operator. I have taken out an entire tonsil in two and a half minutes. I have frequently taken out the upper half in from one and a half to two minutes. I usually work for half a minute and then rest a minute, and then work again for half a minute. In these cases the follicular element is hypertrophied. Dr. Kuyk mentioned something entirely apropos, and that is the matter of cicatricial contraction. I have once in a while had slight cicatricial contraction. I have found if before I operate the anterior pillar is adherent to the tongue that it becomes reattached later on. If the anterior pillar is not attached at the start it does not become attached after the operation. If you make the incision longitudinally in the muscle you will not get contraction; but if you make the incision across the muscle, you may get contraction. In regard to the cases sent to Dr. Ballenger for inspection they were not picked cases. I sent him several cases operated on from three or four to as long as ten years ago. In regard to the use of the angular knife of Yearsley I do not think that the tonsil can be entirely removed with the knife, because bleeding obscures the field so one can not get all the follicular element in that way. I learned that the submerged tonsil was very much buried beneath the anterior pillar so after its removal there was left a hole which would retain secretions, therefore I began to take away more and more of the pillar. You see, gentlemen, this operation is the outgrowth of experience and trial. What I take away is principally mucous membrane of the pillar. After the wound is healed one can not see that any of the anterior pillar has been sacrificed. The part of the pillar I

remove is the posterior edge of the anterior pillar. As to cocaine, I have never had a prostration from the application of cocaine to the fauces when applied with the cotton applicator. I always add from 5 to 10 per cent. of phenol to my cocaine solution, and that may have something to do with it. I formerly used stronger solutions of cocaine, but now I frequently get good results from a 10 per cent. solution. I have sometimes used hypodermatic injections of cocaine in the pillars. It does not do any good to inject cocaine into the tonsil, but it must be injected into the pillars, and preferably under the mucous membrane, so as to produce a bleb, but I have had some intoxication from so doing. By making applications of a 10 per cent. solution and taking plenty of time, I generally get good anesthesia, and I have fancied that the tendency to hemorrhage has been less than when stronger solutions were used. As to the line of demarcation, you will at first find a general redness of the fauces, but if you make the patient gag it will lighten up the anterior part and darken the posterior part, so the line of demarcation shows up clear and distinct, it being directly over the anterior edge of the diseased tonsil. In practice I find the burn causes no harm to the pillar at all, and I make the incision while the patient is on the gag. I remove all of the diseased tissue, and with the after-treatment the wound heals up properly. During the time of healing I insist on the patient returning regularly so I can massage the wound. There is a tendency for connective tissue to form in the wound so it fills up irregularly, therefore I massage it so as to make it heal up solid from the bottom. I fully agree with Dr. Gibbons as to the desirability of getting rid of a diseased tonsil. The total loss of a tonsil does the economy no harm. It is bad surgery to partially remove a diseased tonsil.

DR. BARNHILL—If you could dissect the tonsil loose and remove it as completely with the snare, would you still prefer your method?

DR. PYNCHON—I want to do the operation in a bloodless manner, if possible, and I can do that better with the hot point. After dissecting the tonsil loose so that it is ready to come out, which would be the better to do: to put on the snare or to simply complete the removal with the hot point? What is the use of changing then to the snare? In a very sensitive patient or a child I may use a tonsillotome to clip off the partially loosened piece, but that is the only time.

OTITIC BRAIN ABSCESS.

REPORT OF TWO CASES: APHASIA IN ONE, RECOVERY.*

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LAFAYETTE, IND.

CASE 1.—May 7, 1900, through the kindness of Dr. A. B. Westfall, I was called to see John S., aged 18, who had been taken to St. Elizabeth Hospital. He had suffered with the left side of his head for a month. His condition was as follows: His temperature was 102; pulse, 124; extreme prostration was manifest and his general appearance indicated extreme pyemia. The left ear was discharging. The mastoid was tender to the touch. His tongue was covered with a brown fur and his teeth with sordes. The patient was perfectly rational and answered questions intelligently; no examination was made for aphasia because of the patient's extreme condition. Because of this an immediate operation was agreed on.

At 11 a. m., with the assistance of Drs. Westfall, Throckmorton, White, Morrison, Lee, Hillis and Hopper, the operation was begun in the usual way. The periosteum was scraped aside. When the trephine was applied over the site of the mastoid antrum and given two turns it suddenly sank into the bone. Removing it with the button of bone we saw the whole bone necrosed and filled with granulations and with the most

*Read at the Fifty-third Annual Meeting of the American Medical Association, in the Section on Laryngology and Otology, and approved for publication by the Executive Committee: Drs. Emil Mayer, C. R. Holmes and G. H. Makuen.