is necessary is not right. We have too many fixed rules.

DR. THOMAS, Pennsylvania—I believe there are certain points to be considered. Sometimes surgeons are brought into court charged with malpractice in the treatment of a fracture. If the splint has been taken off sooner than the books say, the attorney for the plaintiff has a case. There was an instance of this kind in our city a short time ago, where a surgeon was mulcted \$5,000 for having let the patient out three weeks after a fracture of the tibia and fibula. If he had been orthodox in his proceedings this unfortunate result would have been avoided. I don't think splints are taken off much too soon, and in justice to ourselves we should not take them off too soon.

DR. MARCY, Boston—A common practice among surgeons on both continents to-day is the elaborate preparatory treatment, which has great disadvantages, in that it keeps the patient in suspense for several days before the operation. Another practice among many is that of getting at a result by several stages. I am in the habit of doing three or four or even more operations at one sitting, which it is customary to do in as many sittings, and I think with great advantage to the patient. I also want to speak of the employment of collodion dressings where no drainage is necessary—to recommend it.

DR. ROBERTS—In closing the discussion, I will say my object has been to emphasize the fact that no surgical injury, process or disease should be treated in a routine manner.

TUMORS OF THE NECK.

Read before the Section of Surgery and Anatomy, at the Forty-fourth Annual Meeting of the American Medical Association.

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No region of the body is so prolific in neoplasms as the neck.

No region of the body is so important from an anatomical and surgical standpoint, containing as it does many great vessels and nerves, the integrity of which is essential to life. Therefore, the diagnosis and treatment of morbid growths in this situation is of commanding interest.

Never passed the time since surgery has been practiced as an art, that its followers everywhere have not approached operations upon the neck with the greatest caution, if not trepidation.

While a proper amount of anxiety should attend all operations in so vital a spot, I shall endeavor to show that the danger incurred in the removal of tumors from the neck, varies as widely as the many neoplasms differ histologically.

Tumors superficial to the deep cervical fascia are comparatively easy of diagnosis and safely operable, presenting no greater danger than similar growths in other regions of the body.

The only vessel of importance is the external jugular vein and this can usually be avoided as it is a prominent landmark in the neck. The danger from cutting it is not great. I have twice wounded it myself and have seen others do so, without trouble. Tumors originating beneath the deep cervical fascia, on the other hand, present the greatest difficulties in their diagnosis and removal.

Tumors of the neck are common at all ages. They are congenital and acquired, cystic and solid, benign and malignant. This region is preëminently the site of congenital cysts and I know of no other which compares to it in this respect. Many tumors

which are usually thought to be acquired are congenital, being held down by the deep fascia and prevented from appearing externally. A congenital cyst may not form a distinct and well outlined tumor until adolescence or middle age. This knowledge is of great value in diagnosis and treatment.

Cysts as they occur in the neck embrace almost every known variety:

1st. The simple, serous or unilocular cyst is frequently met with in the subclavian triangle and may pass downwards under the clavicle into the axilla or chest. They contain as a rule a colorless, limpid fluid and are usually called "hydroceles of the neck."

The cyst is congenital or acquired and may be above or beneath the deep cervical fascia. It is usually translucent and covered by smooth, thin skin of natural color. The aspirator would settle the diagnosis in any doubtful case. These cysts are supposed to grow from the branchial clefts and have been accurately described by Maunoir, Phillips and others.

Treatment.—When practicable they should be excised. When deeply attached, it will be better to excise a portion of the cyst wall, drain freely and plug with iodoform gauze. The old treatment of tapping and injecting with iodine, carbolic acid, etc., is uncertain and dangerous. Setons are more so. Spontaneous recovery has followed accidental rupture.

2nd. The second variety of cyst encountered in the neck is the compound or multilocular—the cystic hygroma of some authors, the lymphangioma cysticum of others. It is generally congenital and develops from the lymphatic vessels. It is most obnoxious to the carotid triangles. The different compartments of these cysts vary in size from a small shot to an orange. Their contents vary as widely as their size. Every sort of fluid, semi-solid and solid materials may be found in them. They are usually situated beneath the deep fascia, but, may perforate it and present superficially.

They are attached to everything—vertebræ, muscles, vessels and nerves, which makes their removal always a serious matter, often an utter impossibility.

No other treatment, however, is at all satisfactory, and most authors recommend excision with all its primary and secondary dangers. The internal jugular vein, carotid artery and pneumogastric nerve have been excised in removing these growths, the patients in some instances making excellent recoveries. They are recognized by their tuberculated outline, fluctuation, and preference for the carotid triangles.

3d. The bloody cyst or hemothorax may be met with in the neck. Sometimes they are hydroceles into which a vessel has ruptured. There is, however, a true bloody cyst intimately connected with the great vessels. Their contents resemble blood, and it is said that they are cyst-like dilatations of the internal jugular vein. They may or may not communicate with the interior of the vessel. Subsidence of swelling upon gentle pressure would be an evidence of such communication, and a useful hint as to treatment as well.

4th. Sebaceous cysts are frequently met with in the neck. They are superficial and deep, usually the latter, as pointed out by von Langenbeck, differing in this respect from similar cysts in other parts of the body. Superficial sebaceous cysts are likely to occur in the thyro-hyoid region and are easily enu-

cleated. They may attain the size of an orange. Deep epidermic cysts are according to Gross, invariably situated in the superior carotid triangles—usually the left. They are frequently connected with the sheath of the vessels, and when the head is in certain positions pulsate synchronously with the heart. They give a pulpy fluctuation which is best elicited by putting one finger in the mouth, the other over the tumor. Von Langenbeck advises extirpation with all of its risks and hazards.

5th. Bursal cysts developed from the two normal bursæ situated along the middle line of the neck are infrequently found. The upper bursa is found between the hyoid bone and thyroid cartilage; the lower and larger one between the thyroid cartilage and skin. These tumors are diagnosed by their situation, viscid contents and obedience to the movements of the larynx. They are rarely so large as a walnut.

6th. Hydatid cysts have in rare instances been found in the neck. Erichsen reports two cases. One removed from the subclavian triangle of a woman upon whom he had previously operated for hydatids of the liver.

7th. Along with cysts may be mentioned the air cyst or goitre aérien. It is caused by hernia of the mucous membrane of larynx or trachea through their cartilages or rings respectively. They disappear upon pressure, vary with respiration and enlarge after exertion. It is a rare affection and occurs in those who use the voice constantly, as the auctioneer or public crier.

8th. Thyroid cysts are less common in America than in the mountainous regions of Europe and India. They are particularly common in the Alps and Himalayas. I have seen many well marked thyroid cysts in Kentucky. These cysts which are usually multiple, generally affect the lobes of the thyroid glands rarely the isthmus. The right lobe more commonly suffers, which will place these tumors in the right inferior carotid triangle. The cysts vary in size from a pea to a fist and contain different kinds of fluid—rather viscid, bloody with an abundance of cholesterine.

They obey the movements of the larynx. Women suffer more frequently than men. The trachea may be pushed well to the opposite side.

Treatment.—If the disease is limited to either lobe, the proper treatment is by excision. Prof. Kocher of Berne, who has lived for years in a goitrous district and has excised the thyroid gland in whole or in part far in excess of other surgeons, is emphatic in his approval of partial thyroidectomy, but condemns removal of the entire gland.

Myxœdema follows the latter operation in nearly every instance. He followed his cases carefully and in only two out of eighteen complete thyroidectomies were the symptoms of myxœdema wanting. In both of these the bronchocele returned, and it is fair to assume that he did not remove the entire gland. Of twenty-eight partial thyroidectomies the general health of the patients did not suffer any. The experience of other surgeons has been not unlike Kocher's, and few if any advise total extirpation of the gland. If a portion of it is left the distressing and fatal symptoms of myxœdema do not occur.

Where excision is not practicable, incision and drainage should be followed. Tapping and injections while curative in some instances are on the whole more dangerous and less certain than incision.

The other enlargements of the thyroid gland may as well be disposed of now. Benign tumors do not affect the thyroid, and the only innocent affection of a solid nature to which it is liable is the fibrous bronchocele. It is simply an hypertrophy of the normal glandular and connective tissue. It may affect the entire gland, but, like cystic disease in this situation, is most obnoxious to its lobes, especially the right. The isthmus rarely suffers alone. Circumscribed hypertrophic conditions of this gland are by some called adenomata. Enlargements of this body in goitrous districts are frequently associated with cretinism.

Per contra, idiocy, so far as I am advised by the superintendent of the feeble minded institutions of this and other States, does not predispose to enlargement of the thyroid.

Malignant disease—carcinoma and sarcoma rarely affects the thyroid. Cancer is by far the more common affection and may exist as encephaloid or scirrhus. It appears late in life.

Treatment.—Nothing can be done for malignant disease. The only hope would be in complete removal of the gland and this is certain to be followed by myxœdema.

The solid bronchocele should be excised under the same rules governing operations for cystic disease.

In very exceptional instances there may be accessory thyroids in the neck—within the larynx, trachea, etc., and they give rise to the same enlargements peculiar to the normal gland. Benign solid neoplasms are found in all parts of the neck. The most usual growths are lymphoma, enchondroma, fibroma and lipoma. There is besides a local hypertrophic condition of the skin which at times is so distinct as to give the appearance of a tumor. The vessels in the affected area are much enlarged. This is really a naevoid condition.

Lymphomata are the most common of benign growths. They will generally be found in the submaxillary, occipital and subclavian triangles. One gland is as a rule affected. Enchondroma is practically limited to the submaxillary triangle where it affects the submaxillary salivary gland. I have never seen it in any other region of the neck.

Fibromas are not specially common, and when they do occur, do so indifferently. No region is specially liable to them.

Lipoma or fatty tumor while not frequent is sufficiently common in the neck. They are very generally superficial to the deep fascia, and when so are easy of removal, whatever their size. My belief is that they are more commonly situated in the inferior carotid triangle than other parts of the neck. They may attain an enormous size as shown by the photographs which I pass around, kindly sent me by my friend Dr. Samuel Swope, of Marion, Ky. Each had grown from twenty to twenty-five years.

Sterno Mastoid Muscle.—There is a circumscribed swelling of the sterno mastoid muscle, which is at times so pronounced as to give decidedly the appearance of a neoplasm.

Bryant and Holmes, who have specially investigated the subject, speak of it as if it were peculiar to the newborn infant and due to some injury (they are more common in breech presentations) during parturition. It unquestionably occurs in adults. I have seen two well marked examples of this affection.

Three years ago a farmer about 55 years of age,

living in Indiana, presented himself at the surgical clinic of the university with a well marked circumscribed swelling in the right mastoid muscle. No history of syphilis or trauma. The muscle could be lifted up sufficiently to clear up any doubt as to diagnosis. This man was given iodide of potassium, blistered locally, and was practically well within a fortnight.

Malignant Tumors.—Malignant disease of the neck may show itself in at least three different varieties. There are sarcomas, carcinomas, and the local enlargements incident to Hodgkins' disease—or as we prefer to call it, lymphadenoma. Sarcomas are more frequent than carcinomas.

Cancer never begins in the lymphatic gland primarily, and sarcoma does so but rarely.

Both sarcoma and cancer are in my judgment usually found after forty, and are likely to be situated in the occipital or submaxillary triangles. Sarcomas give a most deceptive sense of fluctuation when well advanced. The skin is discolored a deep red or violaceous hue and in time ulcerates. Hemorrhages take place from time to time and aid in hastening the end. Sarcoma attain an enormous bulk.

Treatment.—Unless seen and diagnosticated early, these cases are in my judgment not operable. No operation for malignant disease promises success unless considerable tissue can be sacrificed. This can not be done in the neck.

These growths are always more adherent than they seem to be, are exceedingly vascular, often accompanied by enlarged glands which renders their complete removal a matter of impossibility. The primary and secondary dangers are so great from operations for the removal of these growths that the wise surgeon will, as a rule, decline to interfere, for at best he has little prospect of doing substantial good.

Lymphadenoma affects the lymphatic glands of the neck early in the disease. The diagnosis of this affection can only be confounded with tubercular adenitis; as a rule, no trouble should be experienced in differentiating between them.

Tubercular glands always begin in the submaxillary triangle, whereas, in lymphadenoma the enlarged glands are first seen in the carotid and subclavian triangles. Tubercular glands are as a rule, small and unilateral—in lymphadenoma larger and bilateral.

Tubercular glands often break down—lymphadenomata rarely do so. Above all, tubercular glands are most common between ten and thirty years of age; lymphadenoma occurs at any age and *men* are more liable to it than women.

Tubercular adenitis runs a chronic course; lymphadenoma an acute one. Surgery promises but little in lymphadenoma.

Tubercular Glands.—No paper upon tumors of the neck would be complete without a description of the most common of all swellings in this region—tubercular lymphatic glands.

While these growths are inflammatory and not neoplastic in origin, still their history and operative treatment so closely resemble neoplasms that clinically we treat them as such. They are most common between ten and thirty years of age. The African and mulatto are very liable to them. They are unquestionably due to the tubercle bacil-

lus which gains entrance through a lesion of the skin, mucous membrane, socket of carious teeth, etc., and is then carried by the lymph vessels to the nearest lymphatic gland and deposited in its interior. The first glands affected are almost invariably the submaxillary. At first a single gland is enlarged, later on when it is no longer able to filter out all of the tubercle bacilli they pass to the neighboring gland, and so on possibly until the entire chain in this region, superficial and deep, become implicated in the tubercular process. So that we have first the submaxillary glands enlarged, next the occipital, lastly the subclavian. These all belong to the superficial chain.

The deep lymphatic glands are situated immediately beneath the sterno mastoid muscle from its origin to its insertion. These, in part or in whole, sooner or later join in the tubercular inflammation.

In the advanced stage of this affection every gland on one or both sides of the neck may be enlarged. It may run an acute, subacute or chronic course. Death may follow from miliary tuberculosis within a few months, or the disease may remain localized in a single gland for many years. The lymphatic glands are truly the "watch dogs of the system," and it depends upon how well they do their work what is to be the fate of the individual; as long as infection of other tissues, especially the lungs, is prevented, the disease runs a safe course. The capsule of the gland aids materially in localizing the germs and spores and preventing infection of the surrounding paraglandular tissue.

Separate for a time, tubercular glands usually fuse together, moving as a whole, the outlines of each, however, being usually distinct.

The first infected are the largest, possibly attaining the size of a walnut, while those involved late in the process are no larger than a pea. Tubercular glands may become caseous or break down; those first affected are most likely to do so, but they do not suppurate in a literal sense. The fluid or so-called pus is sterile.

Sometimes an acute process is engrafted upon the chronic; the glands becoming affected secondarily by the ordinary pyogenic organisms. Then true suppuration occurs and the glandular tissue and tubercle bacilli are destroyed by the acute process which ends in abscess and drainage—a fortunate ending when only one or two glands are involved. Acute suppuration taking place in a large number of glands could only hasten death.

Treatment.—If modern bacteriology and pathology go for anything, we should not be in doubt as to the treatment of tubercular glands in the neck or elsewhere. Exposure of the diseased parts by a free incision, so that each gland can be seen, felt and completely extirpated, along with its capsule, constitute the ideal treatment. When it is practicable Professor Senn advises—and I think wisely—that the entire chain of diseased glands should be removed en masse. An incision from the mastoid process to the angle of the lower jaw and thence along its lower border, would give free access to the glands usually enlarged. Senn removes the submaxillary salivary gland if it is at all suspicious, also the lower portion of the parotid. The occipital and subclavian glands are easily reached and enucleated.

If the deep chain of glands situate beneath the

mastoid muscle are to be removed, one or two plans are open to the operator. An incision along the anterior or posterior edge of the mastoid may be made in order to gain access to the diseased glands. The fact that the carotid artery and internal jugular vein have been injured in so many cases is sufficient evidence to me that these incisions do not sufficiently expose the parts, and the surgeon depends entirely upon the sense of touch.

Billroth cut the jugular vein sixteen times in 128 operations.

So that the operator shall see and feel every enlarged gland, the sterno mastoid should be cut across about its center, and each end reflected back. Afterwards, the muscle should be sutured with over-prepared catgut or iron dyed silk. The head should be held in one position to facilitate union of the ends of the muscle.

The results of Billroth, Fraenkel, Schnell and others who have done many operations for tubercular glands, are quite as encouraging as an optimist would expect. About 25 per cent. of the cases operated upon suffer relapses and require a second or third operation.

When we remember that enlarged tubercular glands threaten life as long as they remain in the body, each being a focus for subsequent infection, and that in at least one case out of every eight military tuberculosis of the lungs follows, who can doubt what his duty is when a case of this kind comes to him for advice?

DR. MACLEAN of Detroit—The author discountenanced tapping and injecting the so-called hydrocele of the neck; for myself I will say that I have tapped and injected with iodine in a large number of such cases a great many times and I have never had occasion to regret it. I have never known of a failure.

With cystic goitres it is another matter; I occasionally get good results—not always. Sometimes the patient will allow tapping and injection when he will allow nothing else.

I have accidentally cut the jugular vein a good many times and never had any bad results; there is no great danger attached to the accident. There are many questions connected with this subject that are valuable, but I will merely say that I am personally grateful to the author for the manner in which he has dealt with it.

DR. MUDD of St. Louis—I think the reader's classification of tumors of the neck a valuable and helpful one. The diagnosis of the individual case is often a difficult matter.

I don't regard the division of the jugular as very important.

The treatment of cysts of the neck in my hands has been most satisfactory by excision and I regard it as better than tapping and injections. The question has come up in my mind this morning, as it has many times before, whether myxœdema following extirpation of the glands is as likely to occur here as it does in the countries where the condition is of so much more frequent occurrence, and from which the statistics are compiled. It is my belief that it is not.

DR. RODMAN—I thank the gentlemen for the favorable reception they have given my paper.

I find that the treatment by tapping and injection has effected many cures in eminent hands, but I regard excision as safer and better.

SELECTIONS.

Tracheotomy and Intubation in the Children's Hospital at Zurich.

—BY G. BAER.—In this hospital the surgical department of which is under Von Muralt's direction, O'Dwyer's intubation has been carefully practiced, and always with good results, so that now in all diphtheritic cases, stenosis of the larynx, etc., whenever indicated, intubation has become the primary operation. Baer gives the entire history of all cases which occurred from the founding of the hospital in 1874 until 1891. Careful tables of statistics in which are classified the total mortality, the years and seasons in which the cases occurred, ages of patients and the percentage of recoveries from the operation, according to the nature of the disease.

The number of cases reported is 690, of which about 43 per cent. resulted fatally. In 60 per cent. of the cases classified as to age, the youngest have the greatest mortality. Up to the first year of age about 75 per cent. succumbed, and from the eleventh year, only 8.3 per cent. The total number of operations (tracheotomy and intubation both) was 404. During the years 1874 to 1888, tracheotomy only was resorted to in about 323 cases. Later, when intubation was practiced only seven tracheotomies were performed, mostly on account of great swelling of the tonsils with closure of the nasal passages, which rendered intubation impracticable. Seventy-four cases were submitted to intubation, upon nineteen of which tracheotomy was subsequently performed. The mortality of the 404 operations is about 256, or 63.4 per cent. Out of the 323 patients on whom tracheotomy was performed 210 died; of the eighty-one intubations only forty-six succeeded.

The mortality statistics of the entire number, including the non-operative cases point strongly in favor of intubation. More striking is the difference in the more dangerous cases of early life. From the first to the sixth year fatal cases in which tracheotomy was performed showed about 51 per cent. and in intubation only 41 per cent., a good 10 per cent. difference in favor of the latter. Besides, during that period in which intubation was entirely resorted to, a great majority of the cases were those of complicated pharyngo-laryngeal diphtheria, whereas the more simple laryngeal cases were few. The result is all the more noteworthy in that this hospital receives as a rule smaller children. Thirty-five of those intubated were under three years of age.

Following these general statistics is a history of the seventy-four intubation cases with clinical observations, which on the whole overrule the objections made against this operation.

Baer follows the O'Dwyer method except in one point—he does not remove the string from the tube, but fastens it securely between the teeth. This not only prevents the tube from being swallowed or slipping down, but also renders the use of the extubator unnecessary. The withdrawal of the tube can be quickly accomplished with the finger by the nurse in critical moments, and as a re-intubation seldom requires immediate performance this makes the operation more practicable in private practice.

Baer attaches no importance to Escherich's objections, that it adds to the danger from pneumonia, and that the tube prevents expectoration. Although 44 per cent. of the seventy-four cases had pneumonia which had already existed at the time of operation, or had followed it so quickly that it could not be considered as due to the operation itself. In only four of the patients operated on this might have possibly been the case, but the author calls attention to the fact that inflammation of the lungs also follows tracheotomies and if appearing at all, comes somewhere between the third and sixth day after the appearance of diphtheria, so that causes beyond the operative procedures seems to be responsible for this.