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SUSPENSION LARYNGOSCOPY AS A MEANS OF DIAGNOSTIC AND OPERATIVE APPROACH TO THE LARYNX.*

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It has been just five years since my first introduction to you upon this floor when your chairman so graciously extended to me that privilege; two years later, I happened in at one of your meetings and again took part in your proceedings. It is, I assure you, a real pleasure to come this time deliberately for the purpose of taking part in the symposium which your chairman has so considerately arranged, and I wish to take this opportunity of extending my sincerest thanks to each of you for this privilege.

I have discussed suspension laryngoscopy from many stand-points and I have begun to feel that the subject was about exhausted and it was on this account only that I expressed some doubt that the subject was about worn out; but, when your chairman proposed this symposium, I felt that it would be an opportunity to exchange our views and gather the proper fields and limitations of each department, and this more so because of the splendid atmosphere which I know from the past prevails among you.

Suspension laryngoscopy as a diagnostic means of approach to the larynx has its field of usefulness without doubt; but on account of the necessity for its use, one readily understands that it has no place as a routine procedure; but, by its use certain data can be gathered which furnish that refined type of information that leads to most accurate diagnosis. This cannot but help in the more complete and ultimate care of the special condition under observation. For instance, in the diagnosis of tumors, suspension permits the two handed palpation carried out in a manner as delicately and accurately

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as if the larynx were laid upon the surface of the body. While color, vascularity and probable point of attachment can be seen by mirror and spatula, it takes in most instances two hands to gain accurately the size, consistency, and actual point of origin of the tumor mass; and, in the case of large benign tumors and especially the malignant tumors, the extent of involvement and amount of induration can only be determined under two-handed manipulation which is afforded only by the aid of the suspension apparatus.

Points of vital interest to the surgeon in determining the type of operative procedure best suited for the case are also determined by this means; as an example: A fat Italian woman was examined on account of hoarseness from which she had suffered for many years. With a mirror one saw the typical picture of small fibromata at the nodal points on both vocal cords; they were apparently alike in consistency and point of attachment. Under suspension, however, on the left cord were found two small retention cysts occupying the superior surface of the vocal cord possibly a millimeter from its free margin. On the right cord the mass was soft and flabby, not cystic, and was seen to grow from the inferior surface of the vocal cord. On the left side the cysts were opened, the walls curetted and the sacs cauterized with trichloroacetic acid; on the right side the tumor was removed by dissection and found to be adenoma, so that the original diagnosis of fibroma was decidedly inaccurate, and the operative procedure different for the two cords.

In the instance of malignant tumors especially, is suspension most valuable. By mirror we see one-half or one-third of the larynx involved and are only privileged to look down upon the tumor from its superior surface. If the individual throat is sufficiently quiet and the psychology of the patient proper, we may even determine that possibly the subglottic space is involved. The same is true of the spatula, but under suspension, we can determine the depth of the infiltration and its mobility, and we can hold the mass aside and gain sufficient room to see the extent of involvement below the vocal cords. Furthermore by piercing the cricothyroid membrane with a small straight needle, we can accurately measure the extent of its approach to this outlet for the general sympha-

thetic involvement, and we can more accurately palpate the apparently normal side to determine its freedom or involvement; and, with all of this information only, can we best advise this patient as to the best means for his relief from this dreaded malady. If the anterior two-thirds of one vocal cord is involved in malignancy and the induration does not extend down to the perichondrium of the thyroid cartilage, then the case is suitable for removal by suspension, and I have done this successfully seven times. By this I mean without recurrence. If the arytenoid joint is involved and is fixed, it means an involvement of the perichondrium and thyrotomy is more desirable. If the anterior half of the larynx is involved and we have determined that the extension is not beyond or near to the cricothyroid membrane, this may be completely removed by suspension and without the necessity of cutting through the cartilaginous box and therefore open a way for general involvement. If the posterior half is involved, the prognosis is bad by any procedure except total extirpation and we can determine by suspension the probable induration of the esophagus. If this be involved, it is considered decidedly extrinsic and the prognosis is bad.

To determine all of this it is necessary to have two hands free to work, and the accuracy of the extent of involvement can only be appreciated after you have put it into practice. I would like to show you a specimen which illustrates these views very well. I do not believe one studies the delicate movement of the vocal cords nearly as well under suspension as by the other means, for the tension which is necessary to a proper view, while not now so great, still is too much to permit of their free movements. In infants and very young children, however, it seems more useful than the spatula because of the broader view and one can relieve the pathologic state if one is found to exist.

Suspension offers as simple a means of viewing the larynx especially in children for the acute conditions, as does the spatula. I refer particularly to the differential diagnosis of catarrhal subglottic laryngitis as against laryngeal diphtheria, and it has the additional advantage that if intervention is necessary this can be practiced most accurately under suspension.

For the diagnosis of vocal nodules and their removal if desired, especially in infants and young children, suspension is invaluable. As my experience increases, I find many more of these conditions than I had previously realized. While the upper two-thirds of the trachea is well within the view under suspension, I have had no occasion to use suspension for diagnosis here that could not be made by simpler means. It has not been my good fortune to see many tumors of the trachea. The broad field of view under suspension offers an intimate study of the function of the middle and inferior constrictors of the larynx and this is especially true during regurgitation or actual vomiting and likewise is the upper end of the esophagus well within the domain of vision and two-handed palpation. Thus ulcers, polypi, pedunculated tumors, extension of indurations, webs, tags, and the lodgment of foreign bodies are brought not only into view but can be palpated as described before. * From these areas scrapings from ulcers and specimens from tumors can be taken with care and selection for further pathologic research. Under suspension the entire hypopharynx, larynx and upper end of the esophagus are not only under direct view, but open to the two-handed deliberate palpation. In the case of babies and young children the crane is not essential to perfect view and once the view is obtained, it is extremely difficult for the little patient to wriggle loose so as to interfere with the work at hand.

As a means of operative approach to the larynx and upper esophagus suspension laryngoscopy has made possible the development of the two-handed surgery of these regions. Generally speaking, it is now hardly fair to compare any one-handed operative procedure with the modern two-handed type; and, while I would not have you think for a minute that I would belittle that artistic, delicate and difficult procedure for removal of a small tumor from the cord by mirror and forceps, or by spatula and forceps, these procedures are pulling and tearing in their very nature, and their accuracy is always in question. In the hands of a selected few the accomplishments are wonderful, but time, patience, perseverance, ingenuity, and the temperamental make up of both patient and surgeon, are essential to success by these methods; while, once the patient is suspended, the two-handed surgery is simply

putting into practice those fundamental principles which every physician learns from his dissection room days to the time he finishes his surgical assistantship at the operating table.

To detail for you the accomplishments of this two-handed surgery would, I fear, be simply a repetition of my previous publications upon this subject, and yet I cannot help but illustrate its various phases and will ask you to see a little patient with me. The removal of vocal nodules in babies and young children is extremely simple. Grasp the tiny mass accurately and here you are permitted to take hold any number of times without the fear of losing the view and the small knife finishes the dissection. This is applicable to all of the benign pedunculated tumors to which the larynx is liable and the age may range from one to seventy years.

As I have said before, I have deliberately dissected malignant neoplasms from within the larynx seven times and without recurrence; the last case is about eight months ago and from that to four years.

All foreign bodies lodging within view are easily removed, better with two hands free than with one; and, the greater the impaction, the more the necessity for this procedure. Dental plates, open pins, and sharp metallic or shell pieces, are especially considered. The resulting traumatism and injury are almost nil as compared to either the use of the indirect method or direct spatula. The cautery can likewise be applied from the pin point or linear streaks to the mass destruction of Percy. In special conditions stitches can be taken as I have previously noted and plastic flaps constructed and sutured as desired.

Direct intubation is also practiced and the spatula is becoming almost essential in the passage of bronchoscopes in infants and young children; this has been discussed before. I find the suspension now of added advantage in what might be termed combined operations such as thyrotomy and suspension, or laryngectomy and suspension, with an assistant to keep the mouth clean of all secretions and to view the larynx through the mouth during thyrotomy is I assure you of decided advantage. Likewise we find it invaluable during the total extirpation of the larynx, especially to determine the upper limit of dissection and the final coaptation of suture for

the esophagus after the total removal. Approximation of parts along the line of clearance and proper suture of the wound can be accurately guarded and is of invaluable help in this step of the operation.

Finally, there is but one "if" to all of this, and that is: If in any case it is impossible to convert the line from the upper teeth to the base of the epiglottis into a straight line, then suspension is impossible and this surgery is not applicable. As your experience increases, this possibility decreases as with all technic.