

A NEW CLINICAL TEST FOR POSTOPERATIVE VOCAL CORD PARALYSIS

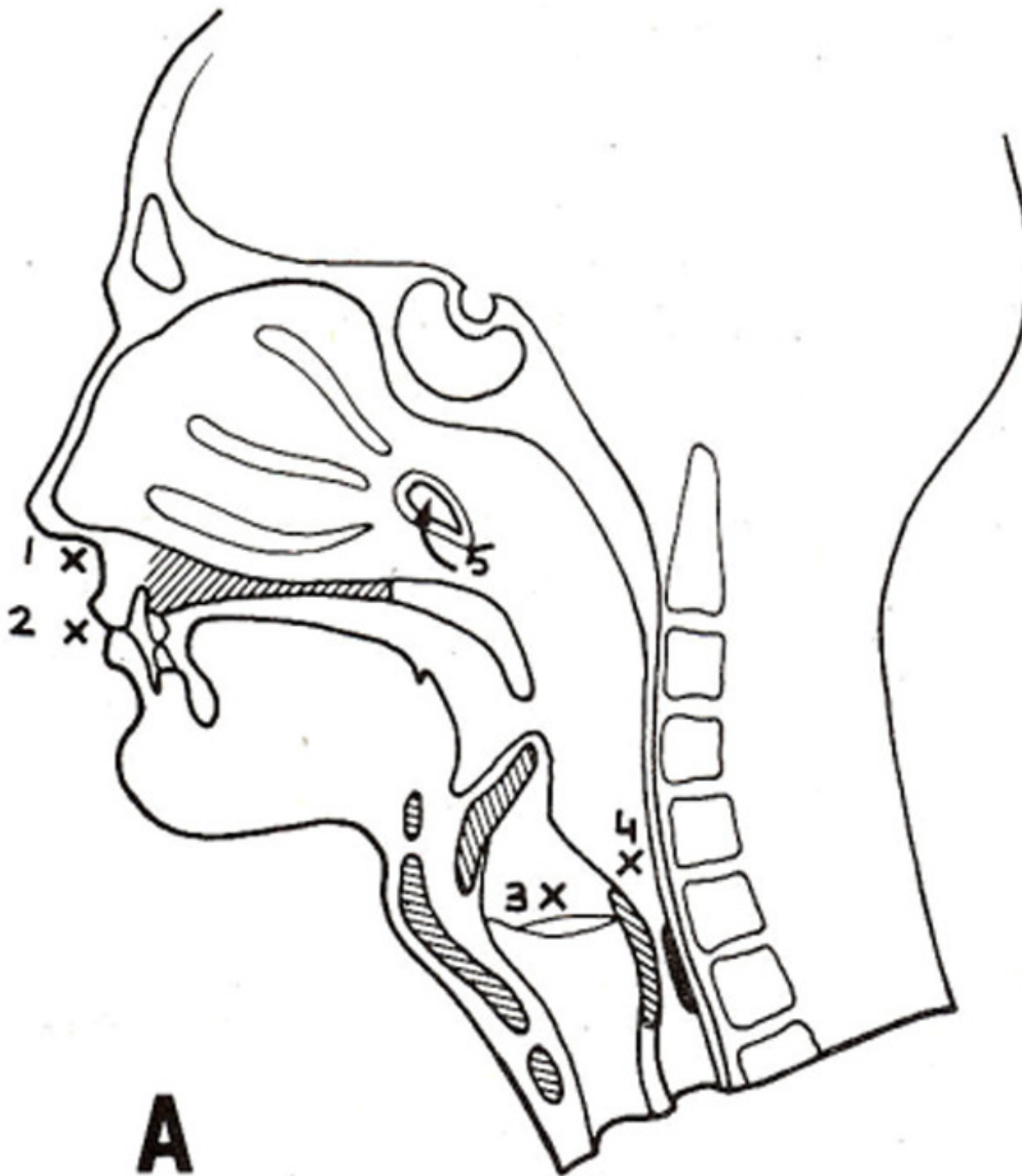
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The author sustained an injury to his right recurrent laryngeal nerves during an operation (Smith Robinson procedure) for cervical disc disease. This painful reality became apparent immediately after operation in an unmistakable and dramatic way by a simple maneuver. Subsequently this maneuver was shown to be a useful and dependable clinical test in similar situations.

THE TEST

The patient suspected of having a recent vocal cord palsy is asked to perform Valsalva's Maneuver. This maneuver consists of opening the eustachian tube by raising air pressure in the nasopharynx. With the lips closed and the nostrils pinched closed with finger and thumb, the patient is asked to blow out. Simultaneous closure of the vocal cords and cricopharyngeal sphincter leads to rise of air pressure in the nasopharynx causing opening of the eustachian tubes and thereby allowing the entry of air to the middle ear (Figure 1).



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 Figure 1. Valsalva's Maneuver with normal vocal cords. Closure of nostrils (1), lips (2), vocal cords (3) and cricopharyngeal sphincter leading to rise of pressure in nasopharynx and opening of the eustachian tubes.

Characteristic sound (click) is appreciated by the patient when air inflates the middle ear. When the same maneuver is performed in a patient with recent recurrent laryngeal nerve paralysis the vocal cords fail to approximate in the midline. The air then follows the path of least resistance and hence gushes down the trachea through the incompetent laryngeal inlet, producing characteristic hoarse croaking sound (Figure 2).

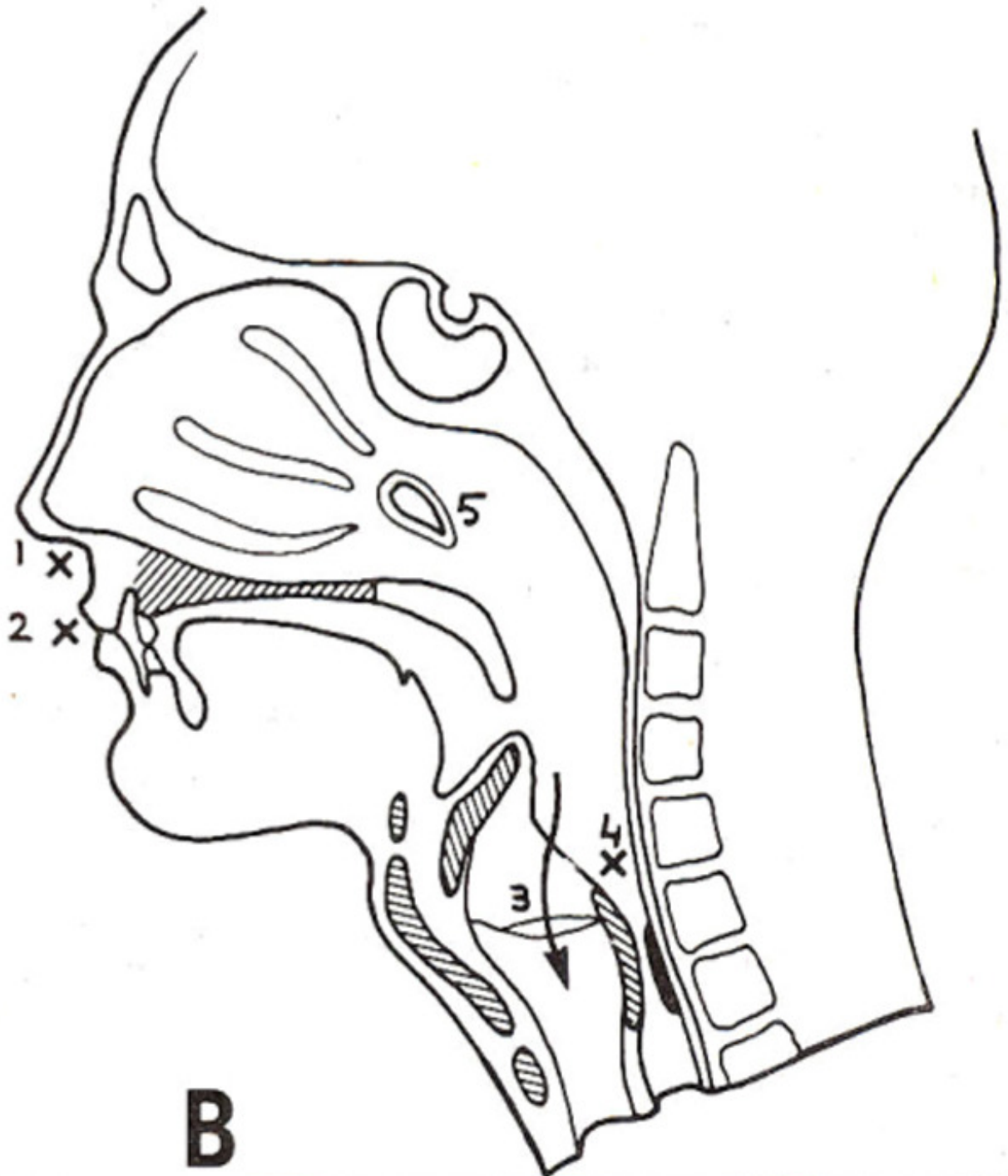


Figure 2. Valsalva's Maneuver with vocal cord paralysis. Closure of the nostrils (1), lips (2) and cricopharyngeal sphincter (4). Failure of vocal cords to approximate in midline (3) causes a blast of air to go down the larynx into the trachea. Eustachian tube (5) cannot be opened as air pressure cannot be built up in this nasopharynx.

This sound is audible to the patient as well as to the examiner with stethoscope placed over the trachea. Simultaneously there is palpable distension of the trachea. Because of the air leak down the larynx, sufficient positive nasopharyngeal pressure cannot be built to inflate the middle ear. Failure to open the eustachian tube and aerate the middle ear and presence of audible gush of air down the trachea during

this maneuver indicates a positive test. When positive, this test is almost pathognomonic of vocal cord paralysis.

DISCUSSION

The etiology of vocal cord palsy is usually traumatic due to surgical damage to the recurrent laryngeal nerve during operations on the neck and adjacent areas; thyroid surgery being the commonest cause^{1,2}. Poor surgical technique, oedema, hematoma, stretching, over-close dissection, monopolar forceps coagulation in the area of the nerve and inopportune suction are the known reasons for such trauma³. Diagnosis of vocal cord paralysis is difficult and usually missed during immediate and early postoperative period due to the following reasons:

1. Unilateral paralysis may cause little trouble with the voice and laryngoscopy is not practised as a matter of course³. In fact, laryngoscopy may be inadvisable immediately after operations on cervical spine, e.g., anterior fusion.
2. Immediately after operation and during first few days, there may be oedema of the vocal folds due to the manipulations during surgery and from intubation. This may confuse the picture and make it difficult to determine the exact cause of dysphonia and hoarseness.

For these reasons vocal cord paralysis may go unnoticed for some time. In one series⁴, fewer than one-fourth of the cases had their paralyse diagnosed in the immediate postoperative period. Early recognition of vocal cord paralysis may be important as it may prompt the surgeon to re-explore the wound. If a recurrent laryngeal nerve is found to be included in a suture ligature and released, there is a possibility that normal function may return. Immediate postoperative decompression of the recurrent laryngeal nerve has had some success in the past. A transected nerve may be repaired by end-to-end anastomosis or interpositional nerve graft, with occasional satisfactory results. In this setting, a simple clinical test like the one described, may help in an early diagnosis and will differentiate the dysphonia caused by vocal cord paralysis from the hoarseness due to vocal cord oedema. It is suggested that this should be the first examination in a case of post-thyroidectomy/post-cervical surgery dysphonia. It may provide a useful screening test in the immediate postoperative period to be followed by a more elaborate diagnostic work up consisting of laryngoscopy with stroboscopy, qualitative and quantitative phonatory measurements, electromyography and orthophonic examination³. As the time goes by the opposite vocal cord starts compensating and this test becomes negative. The voice comes back - a voice that is never qualitatively as strong or effortless or pleasurable as before but sufficient, I gues, to carry on. In the long term unilateral paralysis is not so benign³. A certain compensation (afforded by the mobiliisation of the opposite cord) and improved therapy may lessen the disability but as yet, man is powerless against the difficulties of phonation that can prevent the exercise of certain professions. Sometimes surgery, not only aggravates previous symptoms, but also adds new problems of its own, perhaps even more resistant to treatment His surgery is still a matter of regret for the author, who must view the passing of his hard-earned skills somewhat wistfully, as he shifts his gaze to the barren prospect of the future.

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