

MANAGEMENT OF TRACHEOCUTANEOUS FISTULA

R. Khatri¹, S. Sarkar², A. R. Mehta³

The tracheocutaneous fistula is one of the recognised sequelae of a long term tracheostomy resulting from mucocutaneous overgrowth which prevents the closure of the artificial lumen at the site of tracheostomy. This is associated with increased risks of morbidity and mortality of the patient. One of the serious problems encountered is the risk of aspiration of liquid through the fistula and development of pneumonia especially in elderly. A social problem can develop because of the inadvertent soiling of clothing by saliva and mucus. This is especially observed in patients with advanced laryngopharyngeal cancers who require prolonged cannulation with a tracheostomy tube either because of airway obstruction or anticipated airway difficulty during the course of treatment with radiotherapy and chemotherapy.

It has been observed that prolonged intubation & decreased wound healing capabilities secondary to exposure to high dose of radiation make the management of the tracheocutaneous fistula a vexing problem.

Primary closure of tracheocutaneous fistula has disappointing results & may lead to complications like pneumothorax, pneumomediastinum & cervicofacial subcutaneous emphysema. We describe a simple and reliable technique of successful closure of long standing tracheocutaneous fistula that can be performed as an office procedure under local anaesthesia.

CASE REPORT

A 40 year old female post-irradiated case of carcinoma laryngopharynx (post-cricoid & right pyriform fossa) presented with tracheocutaneous fistula with all well healed edges and well controlled local disease. Flexible laryngoscopy revealed adequate glottic chink with sluggish mobile right cord & no oedema. Because of social problems and difficulty in speech due to tracheocutaneous fistula and considering adequacy of glottic chink decision was taken to close the tracheocutaneous fistula under local anaesthesia.

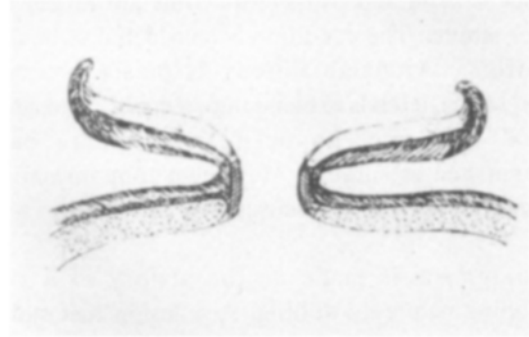


Fig. I: Hinged V shaped skin flaps.

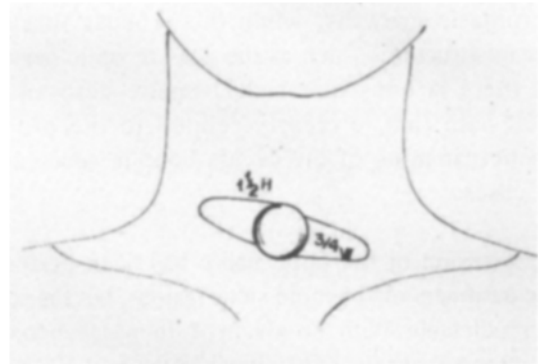


Fig. II: Length & breadth of the flap according to size of tracheostome (v-vertical diameter. H-Horizontal diameter).

Surgical technique

The surgical procedure consists of three steps :

1. Size of tracheostome was measured (1.5-2.0 cms in maximum dimension). Under local anaesthesia hinged V shaped local skin flaps are elevated on either side of tracheostome as shown in Fig. I. The breadth of skin flap is adjusted to three-fourth of the vertical diameter of tracheostome & the length of the flap is adjusted to one & half times of the horizontal diameter of the tracheostome as shown in Fig. II.
2. Hinged skin flaps are folded over each other to form a



Fig. III : Flaps superimposed over tracheostomy opening for closure.



Fig. IV : Skin closure in horizontal manner.

two layered thick anterior wall of trachea by suturing the flaps over each other & with tracheal margin at edges by 3-0 absorbable suturing material (vicryl) as shown in Fig.III.

3) Surrounding skin is mobilised & closed primarily in horizontal manner as shown in Fig. IV.

A small corrugated rubber drain was brought out through the skin incision to prevent post-operative surgical emphysema. The post-operative period was uneventful.

The patient was followed post-operatively for 6 months, no complications and respiratory problem was encountered.

DISCUSSION

Tracheocutaneous fistulae are well recognised sequelae of long term tracheostomies. The incidence of the problem is noted to be more common in patients with extended periods of cannulation. Kulber & passy reported 70%

incidence of tracheocutaneous fistula if tube was present for more than 16 weeks. Multiple techniques have been advocated to correct the problem. Montgomery described excision of the fistulous tract down to the level of trachea with a multiple layer closure. Keenan et. al. reported disappointing results using this technique, specifically in terms of unsuccessful wound healing, pneumothorax & pneumomediastinum. Therefore they concluded that the primary closure of tracheocutaneous fistula should not be attempted. Once the fistulous tract has been excised the wound should be allowed to heal by secondary intention. Other technique that have been advocated, have involved the utilization of strap muscles to reinforce the closure. Sugenoaya advocated the use of auricular cartilage free graft for tracheal wall skeletal support.

CONCLUSION

We describe a simple technique that utilises local skin flaps of closure of a large tracheocutaneous-fistula with a adequate support to the tracheal wall by double breasting of local flaps, thus avoiding the post-operative respiratory problems that can occur due to a single flap projecting into the tracheal lumen during inspiration.

This technique avoids the complications associated with primary closure of fistulae & also the morbidity of waiting for secondary closure to occur. It also precludes the need for a more extensive operation in the form of muscle flap rotation. The fistulous tract does not need to be excised but forms a component of the repair.

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