

Pharyngocutaneous Fistula Following Laryngectomy

Pages with reference to book, From 130 To 132

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Abstract

Sixty-eight cases of stage III and IV laryngeal cancer were analysed to determine the frequency and management of post-operative pharyngocutaneous fistula (PCF). The overall incidence in our series is 8.9% (6 cases). In five patients PCF healed spontaneously without any surgical intervention while one patient expired due to concomitant other medical illness. The longest time taken by the fistula to heal by conservative treatment was 7 weeks. Retaining the NC tube for a longer period (14-16 days) and adequate and appropriate antibiotic cover reduces the incidence of fistula formation (JPMA 45:130, 1995).

Introduction

Pharyngocutaneous fistula is a significant cause of postoperative morbidity following total laryngectomy. The incidence of this serious complication varies from 14% to 70% depending upon the modality of treatment used in combination with surgery¹⁻⁶. This study analyses the incidence and management of pharyngocutaneous fistula after radical laryngeal surgery at our department during the last 7 years (July, 1987-June, 1994).

Patients and Methods

During the period of 7 years (July, 1987 to June, 1994), 68 cases of biopsy proven, stage III and IV, laryngeal cancer patients were subjected to radical surgery at Civil Hospital, Karachi. In all these patients, a thorough clinical, radiological and endoscopic examination was carried out prior to radical laryngeal surgery either alone (54 cases) or followed by radiotherapy (14 cases). Radical neck dissection for nodal metastasis was also carried out along with the primary surgery in 17 patients. Pharyngeal repair was done with 4/0 vicryl suture in a 'T' fashion in three layers. Post-operatively all the patients were put on triple antibiotics which included a cephalosporin, gentamycin and metronidazole. Gentamycin continued for 5 days while the other two antibiotics were given for 12-16 days. We routinely put two radiovac drains with negative pressure one on each side of neck during laryngeal surgery. Drains were removed one after the other between 4th and 7th post-operative day, with a gap of 1-2 days in between. Post-operatively dressing was done around the neck with crepe bandage for 24-48 hours. All these maneuvers were performed to prevent collection of serum in the neck spaces. Patients were examined between 13th and 15th post-operative days for any pharyngeal leakage by giving sterile water orally. If no leakage was found the patients were then allowed to take liquids orally and NG tube was removed the next day.

Results

There were 55 (80.9%) male and 13 (19.1%) female patients.

Table I. Age and sex distribution.

Age (years)	Male No. (%)	Female No. (%)	Total No. (%)
<41	7 (10.3)	2 (2.9)	9 (13.2)
41-50	17 (25)	4 (5.9)	21 (30.9)
51-60	17 (25)	6 (8.9)	23 (33.9)
>61	14 (20.6)	1 (1.4)	15 (22)
Total	55 (80.9)	13 (19.1)	68 (100)

Table I shows the age and sex distribution. Majority (64.8%) of the patients were between the ages of 41 and 60 years. Twenty-three (34%) patients had supraglottic lesion while the glottic and transglottic group comprised of 15(22%) and 30 (44%) patients respectively.

Table II. Topography and 'T' status.

Topography	T3	T4	Tx	Total
Glottic 13	0	2*	15	
Supraglottic	15	8	0	23
Transglottic	-	-	30**	30
Total	28	8	32	68

***Recurrence after radiotherapy.**

**** Both UICC and AJCC uptill now do not include transglottic carcinoma in their classification.**

Table II shows the topography and 'T' status at the time of surgery. Twenty-eight cases had T3 lesion while eight patients had T4 lesion. Up till now both UICC and AJCC system of TNM classification do not include transglottic carcinoma in their classification. Therefore, the transglottic lesions (30 cases) were staged as Tx. Since these lesions were more extensive involving a vertical extension to include more than one topographic site, they were treated with radical laryngeal surgery. Two patients had recurrence after radiotherapy for initial T2 glottic lesion. These were also staged as Tx and were subjected to total laryngectomy. Out of 68 cases, total laryngectomy was done in 53 cases while in 15 cases extended total laryngectomy was done.

Table III. Extensions of classical total laryngectomy.

Operations	No. of patients
Total laryngectomy + Partial Pharyngectomy	10
TL + Partial pharyngectomy + Partial glossectomy	3
TL + Total Pharyngectomy*	2
Total	15

TL= Total laryngectomy

PP= Partial pharyngectomy

* After total pharyngectomy 'stomach pull-up' was done in one case while in other 'colonic interposition' was done.

Table III shows the extensions to classical total laryngectomy. PCF occurred in 6(8.9%) cases. It healed spontaneously by conservative treatment in five patients while one patient expired due to concomitant medical illness. This patient had severe postoperative bleeding which needed exploration and ligation of the bleeders twice, on the same and 1st post-operative day respectively. He also developed severe liver failure on 3rd postoperative day. The probable cause was chronic liver disease due to hepatitis B, which was aggravated by repeated administration of hepatotoxic anaesthetic gases. This patient developed a large pharyngocutaneous fistula. Surgical intervention was not possible due to his medical illness and thus gastrostomy was done for feeding. Patient succumbed to liver failure. Patients in whom PCF occurred included four male and two female cases. Three patients were above the age of 60 years, while three were between 45 and 60 years (Table IV).

Table IV. Pharyngocutaneous fistula.

S. No.	Initial	Sex	Age	Topography	'T' status	Operation	Time of healing
1	NB	M	65	Supraglot.	T4	TL+PP	4 weeks
2	AK	F	45	Supraglot.	T3	TL	4 weeks
3	PB	M	65	Supraglot.	T3	TL	4 weeks
4	MS	M	62	Transglot.	Tx	TL	3 weeks
5	AB	F	56	Transglot.	Tx	TL+PP	7 weeks
6	DK	M	50	Transglot.	Tx	TL	Expired

TL= Total laryngectomy

PP= Partial pharyngectomy

PCF was greater in supraglottic carcinomata where three (13%) patients had PCF out of 23 cases whereas intraglottic lesions 3 (10%) out of 30. In 13 patients partial pharyngectomy was also done (Table III) and PCF occurred in 2(15.3%), while in 56 cases where standard total laryngectomy has been done, PCF occurred in 4 (7.1%) cases. NG tube was not removed in cases with PCF and all the fistulae healed spontaneously by conservative treatment in 3-7 weeks time (Table IV).

Discussion

A pharyngocutaneous fistula following total laryngectomy is not an uncommon occurrence. It exacerbates postoperative morbidity with prolonged hospitalization. The complication may require

additional operative procedures or if untreated may lead to further complications. The incidence of PCF varies worldwide depending upon the modality of treatment used in combination with surgery¹⁻⁶. We prefer surgical modality either alone or followed by radiotherapy to treat carcinoma of larynx. The incidence figure in our series was 8.9%. There are multiple factors which affect the development of PCF. These include site and size of tumour, surgical technique, suture material used, post-operative care, compromised immune status nutrition, pre-operative radiotherapy, chemotherapy and associated surgical procedures including radical neck dissection. Hypothyroidism due to surgical ablation or radiotherapy is also an important cause of delayed wound healing with subsequent fistula formation⁷. These fistulae are refractory to conservative or surgical treatment and substitution therapy results in rapid healing. The advanced stage of the disease and supraglottic tumours extending into the pharynx, requires more extensive resection of the pharynx. These are associated with a higher incidence of post-operative PCF formation. Increasing closure tension in the pharynx associated with the increasing width of resected tissue has a direct relation with the development of fistulae⁸. An adequate pharyngeal lumen can be constructed if there is enough mucosa available that can be sutured without tension over a 18 French feeding tube⁴. We routinely use two radiovac drains with negative pressure for 4-7 days after surgery. The use of radiovac drains with negative pressure keeps the skin in close apposition with the pharyngeal wall. This prevents the collection of blood and serum under the skin and thus prevents infection with subsequent fistula formation. The use of drains with negative pressure is associated with a lower incidence of fistula formation^{4,9}. We also routinely use crepe bandage around the neck for 24-48 hours to fulfill the same purpose. The use of prior and post-operative broad spectrum antibiotics significantly reduces the risk of fistula formation¹⁰. Metronidazole has a very important role in preventing this serious complication^{11,12}. The use of metronidazole along with gentamycin and cephalosporin in our series had showed reduced postoperative infections and fistula formation. Controversy prevails about the time for extubation of feeding tube. There are proponents who keep the NG tube for a short time and believe that this curtails both mortality and hospital stay¹³. Contrary to this some workers keep NG tube for longer duration and believe this, to be instrumental in preventing a fistula^{4,9}. One group does not use NG tube after laryngectomy and starts oral feeding on the 3rd post-operative day with satisfactory results¹⁴. Our practice is to give sterile water orally between 13th and 15th post-operative day and look for any leakage. If no leakage is found we allow the patients to take liquids orally and NG is removed on the next day. In case of leakage tube feeding is continued for another 7-10 days and thereafter the same procedure is repeated. In five out of six cases in our series, fistulae healed completely by following this protocol. We advocate retaining the NG tube for a longer period (14-16 days) specially in situation like ours. Prolonged nasogastric intubation carries no additional risks to patients apart from prolonging the hospitalization. Radical neck dissection along with the primary surgery is considered to be associated with greater incidence of post-operative pharyngocutaneous fistula^{15,16}. However, this is contradicted by other workers^{4,17,18}. In our series radical neck dissection was performed in 17 patients and none of them developed fistula, thus no significant correlation was found between radical neck dissection and fistula formation.

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