RESULTS

The study included 164 males 5 femeles giving a male to female ratio of 32.9 : 1. Their ages ranged from 35 years to 80 years with an average of 56.5 years .

After the 169 total laryngectomies 54 patients developed pharyngeal fistulae, an incidence of 31.9%.

TABLE 1

RELATION OF FISTULA FORMATION TO THE AGE OF THE PATIENT

Age	No.of Patients	No.of fistulae	Per cent of fistulae
Below 40 yrs. of age	81	19	23.5%
Above 40 yrs. of age	88	35	39.2%

$X^2 = 3.5$ $P \leq 0.1$ insigificant

In the younger age group below 40 years fistula fermation occur in 23.5% while in the older age group above 40 years it was 39.2% pointing to the possibility of a better outcome in younger age group. However the level of significance was equal P = 0.1 which is insignificant

TABLE 11

SIGNIFICANCE OF PREOPERATIVE TRACHEOSTOMY IN THE PREDISOPSITION TO PHARYNGEAL FISTULA

	No. of patients	No. of fistulae	Per cent of fistulae
Pre-operative tracheostomy	37	16	43.2%
No pre-operative tracheostomy	132	38	28.8%

X^2 = 1.88 P ≤ 0.5 insignificant

In the preoperative tracheostomy group fistula formation occured in 43.2% while in no preoperative tracheostomy group it was 28.8% pointing to the possibility of a better outcome in no preoperative tracheostomy group. However the level of significance was equal P = 0.5 insignificant .

TABLE 111

CORRELATION OF PHARYNGEAL FISTULIZATION WITH THE PATIENT'S PRE OPERATIVE HAEMOGLOBIN

	No. of patients	No. of fistulae	Per cent of fistulae
Pre-operative haemoglobin below 12.5 mg.%	14	9	64.3%
Pre-operative haemoglobin 12.5 mg% or above .	155	45	29.0%

X^2 = 5 P < 0.05 significant

Patients with pre-operative haemoglobin% lower than 12.5gm have a higher risk of developing pharyngeal fistula (64.3%) than those with pre-operative haemoglobin% more than 12.5 gm (· 29.0%).

TABLE 1V

FISTULA IN RELATION TO TUMOUR SITE

Site	No.of patients	No.of fistulae	Per cent of fistulae
Supraglottic	102	30	29.4%
Glottic	59	21	35.6%
Subglottic	8	3	37.5%

X^2 = 0.53 P > 0.50 insignificant

No relation was found between the site of the tumour and the occurrance of the fistula , except a slight reduction in supra-glottic tumours (29.4%) in correspondance to glottic (35.6%) and subglottic (37.5%) .

TABLE V

INCIDENCE OF FISTULA IN RELATION TO PRE-OPERATIVE RADIOTHERAPY

	No.of patients	No.of fistulae	Per cent of fistulae
Pre-operative irradiation	13	8	61.5%
Patients not irradiated	156	46	29.5%

$X^2 = 3.86$ $P \leq 0.05$ significant

Pre-operative irradiation for cases of cancer larynx made the incidence of pharyngeal fistula more than triple than those who recieved no pre-operative radiotherapy .

TABLE VI

INCIDENCE OF PHARYNGEAL FISTULA IN RELATION TO THE DOSE OF RADIOTHERAPY

Dose in rads	No. of patients	No. of fistulae	Per cent of fistulae
4000 R.	3	1	33.3%
6000 R.	10	7	70.0%

The higher the dose of radiotherapy, the higher the incidence of fistula formation which reached 70% with a dose of 6000 R. while it do not exceed 33.3% with a dose of 4000 R. but here it is not significant because of the small number of patients recorded.

TABLE V11

INCIDENCE OF FISTULA RELATED TO THE TYPE OF INCISION

Incision	No. of patients	No. of fistulae	Per cent of fistulae
U-shaped incision	126	32	26.3
All other incisions	43	22	51.2%

$X^2 = 6.67$ $P \leq 0.01$ highly significant

Using the U-shaped incision, the incidence of fistulization was 50% less than with all other types of incisions .

TABLE VIII

SIGNIFICANCE OF RADICAL NECK DISSECTION IN THE INCIDENCE OF FISTULIZATION

	No.of patients	No.of fistulae	Per cent of fistulae
Radical neck dissection+ Total laryngectomy	62	30	48.4%
Total laryngectomy without neck dissection	107	24	22.4%

$X^2 = 8.25$ $P \leq 0.01$ highly significant

Association of radical neck dissection in the same sitting with total laryngectomy doubled the incidence of pharyngeal fistula .

TABLE IX

INCIDENCE OF FISTULA RELATED TO SUTURE MATERIAL USED IN CLOSURE OF THE PHARYNX

Suture material	No.of patients	No.of fistulae	Per cent of fistuale
Catgut	84	20	23.8%
Non-absorbable material (silk or linen)	85	34	40.0%

$X^2 = 3.46$ $P \leq 0.1$ insignificant .

In addition to the high incidence of pharyngeal fistula following the use of non-absorbable materials, it was noted that those patients were found liable to repeated attacks of abscess formation along the suture line, and on drainage of these abscesses the non absorbable material used in repair was discharged among the pus (but no fistulization followed).

TABLE X

EFFECT OF THE METHOD OF POST-OPERATIVE DRAINAGE ON THE INCIDENCE OF FISTULA

Method of post-operative drainage	No.of patients	No.of fistulae	Per cent of fistulae
Rubber and pressure dressing	115	45	39.1%
Suction drainage	54	9	16.7%

$X^2 = 5.79$ $P \leq 0.02$ significant

Suction drainage proved to reduce the incidence of fistulization from 39.1% with rubber drainage to 16.7% .

TABLE XI

RELATION OF PHARYNGEAL FISTULA TO THE METHOD OF POST-OPERATIVE FEEDING AFTER LARYNGECTOMY

Method of feeding	No.of patients	No.of fistulae	Per cent of fistulae
Naso-gastric tube + Rubber drain	58	29	50%
Intravenous infusion + Rubber drain	29	9	31%
Naso-gastric-tube + Suction drainage	82	16	19.4%

X^2

Naso-gastric tube feeding accompanied by suction drainage gave the lowest incidence of pharyngeal fistulization, next come the method of intravenous infusion with / rubber drain , the worest were noticed with nasogastric tube feeding with / rubber drain .

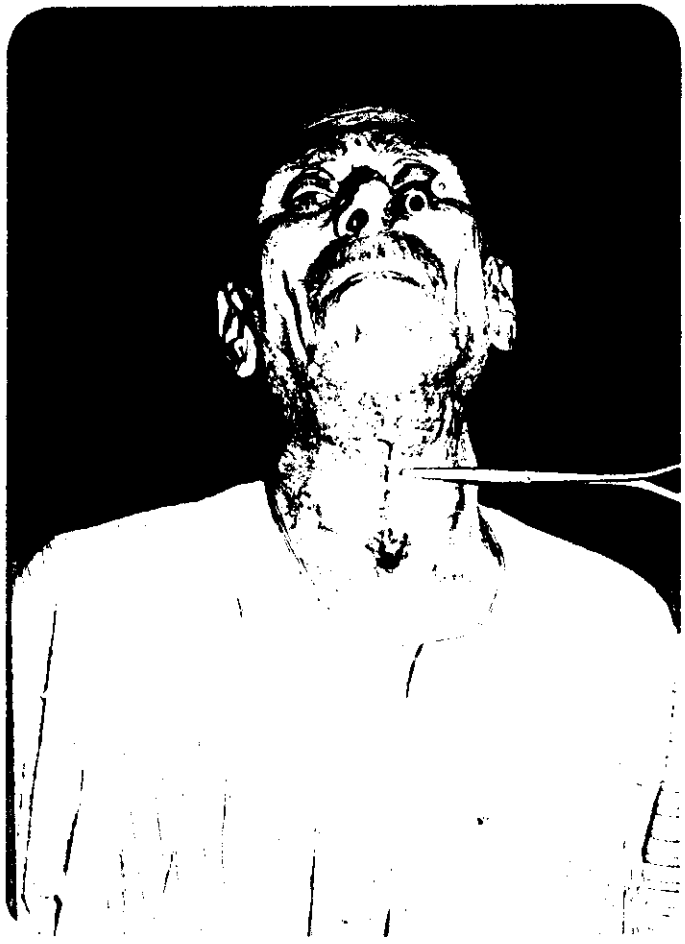

Fig .20.

A patient with minor pharyngocutaneous fistula treated conservatively by inserting a nasogastric feeding tube .

Fig. 21 .

On swallowing of Methylene blue, the dye trickles from the fistula.

Fig. 22 .

* Patient irradiated pre-operatively .

* Tracheostomy was done .

Fig. 23.

MAJOR PHARYNGEAL FISTULA

The patient is under post-operative radiotherapy . A feeding tube was introduced from the major pharyngeal fistula . The major fistula will be closed surgically later .