Background:
Pharyngocutaneous fistulas (PCF) after total laryngectomy continue to be one of the most common and difficult to manage complications of laryngeal surgery.

Development of a PCF leads to significant morbidity, delay in adjuvant treatment, prolonged hospital stay, and increased treatment costs.

There is currently no consensus on the most significant risk factors and the optimal method of identifying contained salivary leaks and their clinical significance has not been well studied.

Methods:
Retrospective cohort study.

Patients with advanced stage SCC of the larynx that underwent total laryngectomy (n = 259).

56% failed previous radiation

Risk factors for fistula formation were analyzed, as well as barium esophagram results.

Results:

Overall fistula incidence: 21%
Primary: 17.9%
Salvage: 24%

Median time to fistula formation:
12 days (range 4 to 105 days)

Significant risk factors:
Previous radiation (p = 0.03)
Hypothyroidism (p < 0.0002)

Table 1. Sensitivity and specificity of barium esophagrams in detecting post-operative leaks

<table>
<thead>
<tr>
<th></th>
<th>Primary</th>
<th>Salvage</th>
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<tbody>
<tr>
<td>Sensitivity</td>
<td>55%</td>
<td>14%</td>
</tr>
<tr>
<td>Specificity</td>
<td>97%</td>
<td>91%</td>
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</tbody>
</table>

62% of fistulas healed with conservative measures only

13 patients had recurrent fistulas

Conclusions:

Previous radiotherapy and hypothyroidism, particularly in salvage laryngectomy patients, are important significant predictors of developing a post-operative pharyngocutaneous fistula.

The use of a post-operative barium swallow in these patients can be useful, but was not found to be highly sensitive in predicting who will develop a clinically evident leak and should be used with caution.