

Short communication

# Role of culture of postoperative drainage fluid in the prediction of infection of the surgical site after major oncological operations of the head and neck

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## Abstract

Infection of the surgical site after major oncological operations of the head and neck increases mortality and morbidity. The aim of this prospective pilot study was to assess the efficacy of culturing the exudate from the drain after cervical neck dissection to see if it predicted such infection. We studied 40/112 patients with squamous cell cancer of the head and neck who were treated during the last two years and met our inclusion criteria. Six patients developed infections (15%). Reconstruction with pedicled rather than local or microvascular flaps, duration of operation of over 7 hours, the presence of a tracheostomy, and bilateral neck dissection were considered risk factors ( $p=0.01$ ). Culture of drainage fluid on postoperative day 3 that grew no pathogens predicted that the site would not become infected, with a negative predictive value of 96%.

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**Keywords:** Oral cancer; Microbiology; Drainage; Surgical wound infection; Prognosis; Screening

## Introduction

The aspiration of drainage fluid allows clean suction of wound exudate with a low risk of contamination of the wound,<sup>1</sup> but colonisation is an independent risk factor for infection of the surgical site.<sup>2</sup> Our aim was to assess the efficacy of culturing drainage fluid to find out if it predicted the development of infections of the surgical site in patients who had had major resections for squamous cell cancer (SCC) of the head and neck.

## Patients and methods

This prospective pilot study was approved by the institutional ethics committee (N9-32-2011). We recruited 40 patients from 112 who had been treated for SCC of the head and neck during the last two years. The inclusion criteria were: they were to have unilateral or bilateral cervical neck dissection; they had had no previous operations on the neck, or chemotherapy or radiotherapy; they were given the same antibiotic regimen (amoxicillin/clavulanic acid 2 g preoperatively, and 1 g 8-hourly until drains were removed or the wound had healed) and corticosteroids (dexamethasone 8 mg 8-hourly decreasing every 24–48 hours); and they had had aspiration drainage from the site. Drainage samples were drawn in 2 ml aliquots on postoperative days 1, 3, 5, and 7, and transported for culture in Amies Agar medium

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Table 1  
Details of patients and results. Data are number (%) of patients, unless otherwise stated.

Variable	Infection (n = 6)	No infection (n = 34)	p value
Sex			0.15
Male	6	21	
Female	0	12	
Mean (SD) body mass index	27 (6)	29 (5)	0.49
Site of tumour			0.08
Tongue	1	13 (38)	
Maxillary gingiva	0	4 (12)	
Mandibular gingiva	2	3 (9)	
Buccal mucosa	3	3 (9)	
Floor of mouth	3	5 (15)	
Nodal metastases	0	6 (18)	
Diabetes			1
Yes	1	8 (24)	
No	5	26 (76)	
Tracheotomy			0.01
Yes	6	13 (38)	
No	0	21 (62)	
Bilateral neck dissection			0.01
Yes	4	4 (12)	
No	2	30 (88)	
Type of flap			0.01
Local	1	25	
Pedicled:	3	3	
Pectoralis major	2	3	
Temporal myofascial	1	0	
Microvascular	2	6	
Anterolateral thigh	1	3	
Fibular	1	2	
Medial sural	0	1	
Communication between oral cavity and neck			0.65
Yes	3	12 (35)	
No	3	22 (65)	
Mean (SD) duration of operation (hours)	9 (2)	7 (3)	0.04
Mean (SD) duration of stay in hospital (days)	46 (44)	13 (7)	0.001

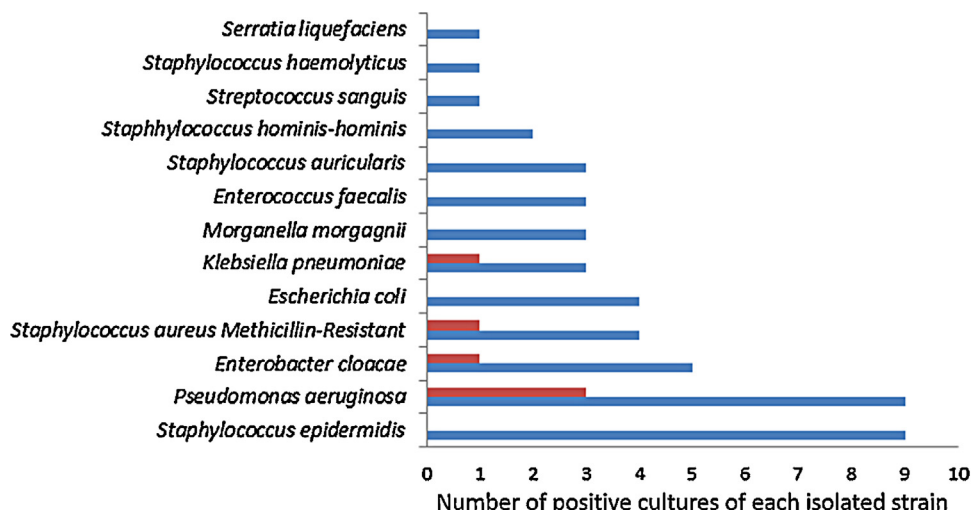


Fig. 1. Bacteria isolated from the drainage samples. Red bars indicate patients who developed infections. Blue bars indicated those wounds that were colonised but did not develop infections.

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