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Sunil Kumar Agrawala
Associate Professor, Department of Surgical Oncology, IMS & SUM Hospital, Bhubaneswar, Odisha, India

Mahesh Chandra Sahoo
Assistant Professor, Medical Research Laboratory, IMS & SUM Hospital, Bhubaneswar, Odisha, India

Correspondence
Mahesh Chandra Sahoo
Assistant Professor, Medical Research Laboratory, IMS & SUM Hospital, Bhubaneswar, Odisha, India

Incidence of MRSA at surgical site infections after head and neck free flap Surgery: Our experience

Sunil Kumar Agrawala and Mahesh Chandra Sahoo

Abstract
Decide the season of beginning and microbiology of careful site diseases following head and neck free fold reconstructive surgeries. All 504 free fold careful cases (484 patients) performed April 1, 2014 to September 30, 2018 were investigated; SSIs happening _30 days postoperatively were assessed. Confirmation screening for methicillin-safe *Staphylococcus aureus* (MRSA) colonization was performed on all patients. Fold beneficiary site diseases (fold SSIs) happened in 67 cases (13.3%), 33% week 1 postoperatively, onethird week 2, 33% days 15 to 30; 45% happened after clinic release. Wound societies were polymicrobial, yet 25% developed just typical oral vegetation, while 75% developed pathogens not part of ordinary oral greenery, for example, gram-negative bacilli (44% of cases), MRSA (20%), and methicillin-touchy *S aureus* (MSSA) (16%). The recurrence of these pathogens did not change altogether when of SSI beginning. In 67%, societies included something like one pathogen impervious to the prophylactic anti-microbial utilized. Clindamycin prophylaxis was a noteworthy hazard factor for fold SSI and for early halfway or complete fold misfortune from disease. Giver SSIs happened in 22 cases (4.4%), 95% >1 week postoperatively, and MRSA or MSSA were the essential pathogens in 89%. Of the 25 patients colonized with MRSA on affirmation, 40% built up a fold or benefactor SSI, a rate fundamentally higher than in non-colonized patients. Gram-negative bacilli, MRSA, and MSSA were critical SSI pathogens, and late beginning of disease was normal. Better screening, decolonization, and prophylaxis may lessen SSI rates.

Keywords: Surgical site infection, free flap, reconstructive surgery, head and neck

Introduction
Careful site contaminations (SSIs) happen in 20% to half of head and neck free fold reconstructive surgeries [1-6] causing expanded dreariness and cost of consideration. The ideal anti-toxin prophylaxis has not been established [7] Most free fold medical procedures include cuts in the upper aerodigestive tract, and ordinarily utilized prophylactic anti-toxins target typical oral vegetation. In any case, head and neck disease patients might be colonized by non-ordinary oral vegetation bacteria [8] which may prompt early-beginning SSIs. This vegetation may change amid hospitalization [9-12] and nthe new greenery may add to late-beginning SSIs. The season of beginning and microbiology of SSIs may advise protection procedures. Hardly any investigations of free fold medical procedures have revealed when SSIs happen in the 30-day postoperative period or whether the microbiology changes with time of SSI beginning. We surveyed our involvement in a huge companion of free fold cases. Also documented the MRSA infections with this type of surgery in our locality.

Material and Methods
This study of 31 sequential patients who experienced complete laryngectomy at IMS and SUM Hospital. The examination time frame kept running from January 2014 until January 2018. From January 2014 all patients experiencing treatment for head and neck disease have been entered tentatively on a database. All patients with a finding of head and neck malignant growth were talked about in the provincial head and neck oncology multidisciplinary group (MDT) meeting before complete treatment being initiated. Patients experienced elective pre-affirmation MRSA screening upon confirmation through swab taking. Resulting screening proceeded all through the in patient remain in emergency clinic. In this way all new MRSA acquisitions were in this way recognized tentatively. Amid their

inpatient remain as a standard convention, patients were screened for MRSA twice week after week. Persistent information including MRSA swab results and postoperative water dissolvable swallow tests were recovered from the electronic patient record. All patients experiencing head and neck medical procedure were given peri-agent anti-microbial prophylaxis and postoperative gastro-oesophageal reflux drug as a convention. With the end goal of this examination a pharyngo-cutaneous fistula was characterized as a clinically recognized fistula or radiologically distinguished release that postponed the beginning of oral nourishing after laryngectomy. Multivariate investigation was performed utilizing STATA measurable programming to examine the information. The accompanying elements were examined to decide their impact on fistula development: T organize, past radiotherapy and MRSA contamination.

Results

Amid the investigation time frame (2014 to 2018 comprehensive), 31 complete laryngectomies were performed for cutting edge laryngeal malignancy. The patient statistic information were represented in Table 1. The mean patient age was 65 years (go 37 to 86). 15 patients experienced essential laryngectomy for cutting edge laryngeal disease and 16 patients had rescue laryngectomy for repeat after past fizzled radiotherapy. A pharyngo-cutaneous fistula (PCF) happened in 10 (32%) patients, MRSA was recognized in 8 of these patients. Of the 21 patients that did not build up a PCF, 2 were found to procure MRSA disease (in the tracheal stoma). This distinction achieved factual importance p = 0.0001255 Fisher correct test (Table 2). None of these 31 patients were observed to be transporters of MRSA on pre-agent screening. Consequently from this gathering of 31 patients, 10 (32%) supposedly acquired MRSA amid their emergency clinic remain. Utilizing multivariate examination, past radiotherapy (p = 0.00025) and MRSA disease (p = 0.00012) were recognized as huge hazard factors for PCF (Table 3). MRSA was refined from the tracheostomy stoma site in 5 patients, in 3 patients it was identified in the fistula site, from the careful empty 1 and out of the gastrostomy site in 1 understanding (Figure 2). The 2 patients that acquired MRSA yet did not create PCF did anyway endure critical grimness. 1 quiet built up a noteworthy cellulitis disease and 1 had a carotid fistula that expected come back to the working performance center to capture the dying.

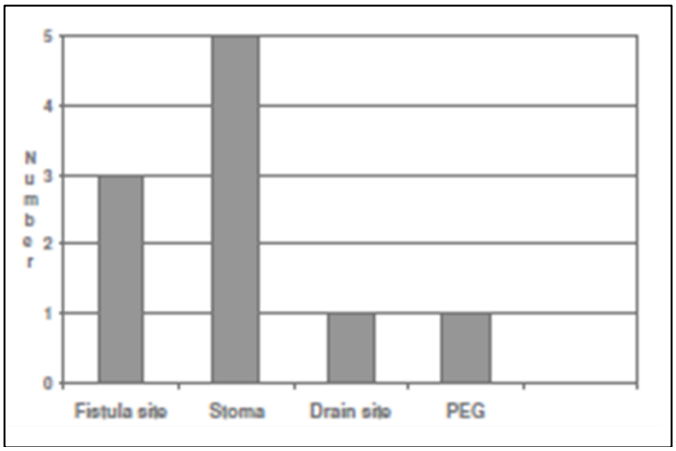

Fig 1: Sites Where MRSA Was Isolated.

Table 1: Patient Demographic Data

Patient	TNM	Previous Radiotherapy	MRSA	Fistula
1	T4N0M0	N	×	×
2	T2N0M0	Y	√	√
3	T4N1M0	N	×	×
4	T2N0M0	Y	√	×
5	T4N0M0	Y	×	×
6	T3N2BM0	N	×	×
7	T4N1M0	N	×	×
8	T3N2BM0	N	×	×
9	T4N0M0	N	√	√
10	T4N0M0	N	√	√
11	T3N1M0	N	×	×
12	T4N2CM0	N	×	×
13	T4N0M0	Y	√	√
14	T4N0M0	N	×	×
15	T3N0M0	Y	√	√
16	T2N0M0	Y	×	√
17	T2N0M0	Y	×	×
18	T4N0M0	N	×	×
19	T3N0M0	Y	√	√
20	T4N1M0	Y	√	√
21	T2N0M0	Y	×	×
22	T4N0M0	Y	×	√
23	T4N2BM0	N	×	×
24	T3N0M0	Y	×	×
25	T3N1M0	N	×	×
26	T2N0M0	Y	×	×
27	T2N2BM0	N	√	√
28	T2N0M0	Y	×	×
29	T2N0M0	Y	×	×
30	T3N2BM0	N	√	×
31	T2N0M0	Y	×	×

Table 2: MRSA Infection and Fistula Formation

	Fistula +ve	No Fistula	Total
MRSA +VE	8	2	10
MRSA -VE	2	19	21
TOTAL	10	21	31

Table 3: Mukha / late analysis of Risk Factors for PG

	p VALUE	1212D11161111	
T Stage	*p*= ODS4	1.15	04-43
Mrsa Inektion	p= 0.00012	9.2	236356
Previous Radiotherapy	p= 0130035	8.6	1.24-27.9
(Log rank test)			

Discussion

MRSA may live in solid people and not bring on any medical issues. Anyway medical clinic procured disease can result in huge horribleness and mortality. The primary instance of MRSA was recognized as ahead of schedule as 1961-1962 not long after presentation of Methicillin in 1960 [14, 15]. MRSA has caused specific worry because of the protection from standard anti-infection agents brought about by quality mecA and the speed with which it spreads [14-16]. MRSA emerged as a medical clinic based contamination yet has relentlessly spread to the network [15, 16]. Medical clinic procured MRSA disease has been relentlessly expanding and in a few reports contamination rates have come to over 60% [15]. In this arrangement we have distinguished an obtaining rate of 30% which is high. We trust this is on the grounds that head and neck patients experiencing significant medical procedure especially in danger of this

contamination. Head and neck disease patients are inclined to MRSA contamination because of various factors, for example, delayed hospitalization, intravascular catheterization, bargained host insusceptibility, threat, chemotherapy, radiotherapy medical procedure, earlier anti-microbial treatment and delayed agent time [14-18]. A significant number of these variables were available in our arrangement of patients. Following complete laryngectomy, the mucosa of the trachea is for all time straightforwardly presented to room air and we feel this site is especially inclined to MRSA contamination. This is the reason the tracheal stoma was appeared to be the commonest site of contamination. Genuine postoperative confusions identified with MRSA disease have been distinguished in head and neck medical procedure patients with huge increment in horribleness [19, 20] number of surgeries and delayed hospitalization time [21]. One of our patients had a carotid fistula or 'victory' which is a dangerous entanglement. Colonization of the tracheostomy site seemed, by all accounts, to be the most critical site of MRSA contamination. The formation of a perpetual tracheostomy following absolute laryngectomy may fundamentally diminish the patient's neighborhood protection instrument enabling a course of contamination to the air stomach related tract. PCF following laryngectomy comprises an especially genuine complexity with ensuing pulverizing therapeutic, useful, mental and practical impacts. The rate runs impressively from 8% to 40%, as per the writing [22-28]. An as of late distributed meta-examination of recently distributed investigations on post-laryngectomy PCF reasoned that the accompanying four elements were believed to be noteworthy: a) preoperative radiotherapy, b) postoperative hemoglobin level beneath 12.5 g/dl, c) earlier tracheostomy, and d) preoperative radiotherapy and simultaneous neck dismemberment [13]. Our examination additionally has distinguished preoperative radiotherapy as a vital hazard factor for PCF. As far as anyone is concerned this is the primary examination to research and recommend a potential causal connection among PCF and MRSA in patients experiencing all out laryngectomy for laryngeal disease. While we have discovered an essentially higher MRSA contamination rate in patients that have created PCF following laryngectomy contrasted with those that did not, this affiliation just involves MRSA as a conceivable causative factor in. We perceive the constraints of this paper in that the plan is review and test measure little, anyway we feel the high frequency of MRSA contamination found in the PCF patients warrants further examination. The rate of PCF in our laryngectomy patients was high (32%) contrasted with recently distributed arrangement. The focal point of future examination in our organization is gone for decreasing this PCF rate. MRSA main method of transmission is through direct contact by means of emergency clinic faculty and via airborne transmission especially from patients with tracheostomies [14-17]. Numerous techniques have been supported to counteract MRSA contamination with variable level of proof based, including look and wreck arrangement, prohibitive anti-microbial recommending approach [23], hand cleanliness with the utilization of alcoholbased arrangements, disconnection measures [24]. The high rate of MRSA contamination found in this patient gathering obliged us to redesign our disease control conventions and we have consequently observed a sensational decrease in MRSA contamination rates. There is some debate in regards to treating MRSA colonization versus disease especially in medical clinic staff transporters and in endemic zones like UK, which can be turned out to be troublesome. Anyway in view of the specific dangers related with head and neck malignancy patients, colonized patients ought to be annihilated before real medical procedure [21]. The present methodology is to do preoperative screening and suitable treatment by germicide skin washes, nasal mupirocin and chlorhexadine mouthwashes, disconnection or hindrance nursing and peri-agent hostile to MRSA anti-toxin in bearer patients, and prudent anti-toxin solution practice. Having completed this examination, we have executed a MRSA annihilation convention in all patients experiencing laryngectomy regardless of whether they are not colonized with MRSA so as to decrease contamination rates. We have likewise observed a huge generally speaking decrease in MRSA contamination rates over the medical clinic because of strict hand cleanliness, screening and MRSA destruction conventions being actualized. MRSA will keep on representing a test on account of rising rate in emergency clinics and nursing homes as well as in the outpatient network. The rise of progressively safe staph. aureus life forms and the request to treat patients with an ever increasing number of complex therapeutic conditions will keep on testing medicinal and nursing staff later on.

Conclusion

This is the primary investigation to recognize MRSA as a conceivable causative specialist in pharyngo-cutaneous fistula (PCF) following all out laryngectomy for laryngeal malignant growth. Patients who experienced laryngectomy following radiotherapy disappointment and procured MRSA were at higher danger of PCF. MRSA disease present laryngectomy can lead on huge dreariness. A multidisciplinary approach is basic for viable administration. Execution of MRSA destruction convention is prescribed in each patient undergoingsalvage laryngectomy.

References

1. Karakida K, Aoki T, Ota Y *et al*. Analysis of risk factors for surgical site infections in 276 oral cancer surgeries with microvascular free flap reconstructions at a single university hospital. J Infect Chemother. 2010; 16:334-339.
2. Bourget A, Chang JTC, Wu DBS *et al*. Free flap reconstruction in the head and neck region following radiotherapy: a cohort study identifying negative outcome predictors. Plast Reconstr Surg. 2011; 127:1901-1908.
3. Lee DH, Kim SY, Nam SY *et al*. Risk factors of surgical site infection in patients undergoing major oncological surgery for head and neck cancer. Oral Oncol. 2011; 47:528-531.
4. Lotfi CJ, Cavalcanti R, de C, Silva AMC *et al*. Risk factors for surgical site infections in head and neck cancer surgery. Otolaryngol Head Neck Surg. 2008; 138:74-80.
5. Ma CY, Ji T, Andrew OW *et al*. Surgical site infection in elderly oral cancer patients: is the evaluation of comorbid conditions helpful in the identification of high-risk ones. J Oral Maxillofac Surg 2012; 70:2445-2452.

6. Kamizono K, Sakuraba M, Nagamatsu S *et al*. Statistical analysis of surgical site infection after head and neck reconstructive surgery. Ann Surg Oncol. 2014; 21:1700-1705.
7. Russell MD, Goldberg AN. What is the evidence for use of prophylactic antibiotics in clean-contaminated head and neck surgery? Laryngoscope. 2012; 122:945-946.
8. Becker GD, Parell GJ, Busch DF *et al*. Anaerobic and aerobic bacteriology in head and neck cancer surgery. Arch Otolaryngol. 1978; 104:591-594.
9. Johanson WG, Pierce AK, Sanford JP. Changing pharyngeal bacterial flora of hospitalized patients: emergence of gram-negative bacilli. N Engl J Med. 1969; 281:1137-1140.
10. Johanson WG, Dever LL. Nosocomial pneumonia. Intensive Care Med. 2003; 29:23-29.
11. Yoshioka H, Fujita K, Maruyama S *et al*. Changes in aerobic pharyngeal flora related to antibiotic use and the emergence of gram-negative bacilli. Clin Pediatr (Phila). 1982; 21:460-462.
12. Watters K, O'Dwyer TP, Rowley H. Cost and morbidity of MRSA in head and neck cancer patients: what are the consequences? J Laryngol Otology. 2004; 118:694-699.
13. Paydarfar JA, Birkmeyer NJ. Complications in head and neck surgery: a meta-analysis of post laryngectomy pharyngocutaneous fistula**.** Arch Otolaryngol Head Neck Surg. 2006; 132(1):67-72.
14. Watters K, O'dwyer TP, Rowley H. Cost and morbidity of MRSA in head and neck cancer patients: what are the consequences? J Laryngol Otol. 2004; 118:694-9.
15. Oken MM, Creech RH, Tormey DC, Horton J, Davis TE, McFadden ET *et al*. Toxicity and Response Criteria Of The Eastern Cooperative Oncology Group**.** Am J Clin Oncol. 1982; 5:649-655.
16. Collins M, Tami TA. Methicillin-resistant Staphylococcus aureus (MRSA) in the practice of otolaryngology - an emerging community acquired organism? Curr Opin Otolaryngol Head Neck Surg. 2003; 11:179-83.
17. Shiomori T, Miyamoto H, Udaka T, Okochi J, Hiraki N *et al*. Clinical features of head and neck cancer patients with methicillin-resistant Staphylococcus aureus**.** Acta Oto-Laryngologica. 2007; 127:180-185.
18. Morimoto Y, Sugiura T, Tatebayashi S, Kirita T. Reduction in incidence of methicillin-resistant Staphylococcus aureus (MRSA) after radical surgery for head and neck cancer**.** Spec Care Dentist. 2006; 26:209-13.
19. Parton M, Beasley NJP, Harvey G, Houghton D, Jones AS. Four cases of aggressive MRSA wound infection following head and neck surgery**.** J Laryngol Otol. 1997; 3:874-6.
20. Tungekar MF. Tracheocarotid artery fistula infected with methicillin resistant Staphylococcus aureus**.** J Laryngol Otol. 1999; 113:689-91.
21. Simo R, French G. The use of prophylactic antibiotics in head and neck oncological surgery**.** Curr Opin Otolaryngol Head Neck Surg. 2006; 14:55-61.
22. Stoeckli SJ, Pawlik AB, Lipp M, Huber A, Schmid S. Salvage Surgery After Failure of Nonsurgical Therapy for Carcinoma of the Larynx and Hypopharynx**.** Arch Otolaryngol Head Neck Surg. 2000; 126:1473-7.
23. Watters GWR, Patel SG, Rhys-Evans PH. Partial laryngectomy for recurrent laryngeal carcinoma**.** Clin Otolaryngol. 2000; 25:146-152.
24. Nibu K, Kamata S, Kawabata K *et al.*: Partial laryngectomy in the treatment of radiation failure of early glottic carcinoma**.** Head Neck. 1997; 19:116-120.
25. Ganly I, Patel SG, Matsuo J *et al.* Results of Surgical Salvage after Failure of Definitive Radiation Therapy for Early-Stage Squamous Cell Carcinoma of the Glottic Larynx**.** Arch Otolaryngol Head Neck Surg. 2006; 132:59-66.
26. Ganly I, Patel S, Matsuo J *et al.*: Postoperative complications of salvage total laryngectomy**.** Cancer. 2005; 103:2073-81.
27. Wertheim HF, Vos MC, Boelens HA, Voss A, Vandenbroucke-Grauls CM, Meester MH *et al*. Low prevalence of methicillin-resistant Staphylococcus aureus (MRSA) athospital admission in the Netherlands: the value of search and destroy and restrictive antibiotic use**.** J Hosp Infect. 2004; 56:321-5.
28. Voss A. Preventing the spread of MRSA**.** BMJ 2004; 329(7465):521.