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Free flap reconstruction for patients aged 85 years and over with head and neck cancer: clinical considerations for comprehensive care

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Abstract

We aimed to identify and evaluate the clinical challenges involved in microvascular flap reconstructions of defects caused by resection of head and neck cancer among patients aged 85 and over. We designed a retrospective study of patients who were treated in the head and neck department of a tertiary referral centre from 2005 to 2015, and all patients aged 85 years and over who had reconstructions with microvascular flaps for head and neck cancer were entered into the study. A total of 24 patients fulfilled the criteria, of whom 15 were men and nine were women. The median (range) duration of stay in hospital was 23 (14-59) days. Eighteen patients had an American Society of Anesthesiologists (ASA) score grade II and six patients grade III. The median (range) operating time was 420 (310-705) minutes, and operative blood loss 550 (200-1500) ml. Sixteen patients had prophylactic tracheostomies, nine of whom developed postoperative surgical complications, seven associated with the tracheostomy ($p = 0.005$). Resections of head and neck cancer and microvascular reconstructions in patients aged 85 and over are associated with a high incidence of postoperative complications. Medical complications tend to be associated with the tracheostomy while surgical complications are potentially associated with the ASA score. Although the morbidity is high, complex resections and microvascular reconstructions are successful with optimum recovery, and age did not seem to influence the outcome. However, it is necessary to avoid prophylactic tracheostomy if possible in these patients.

Keywords: Patients aged 85 years and over; Head and neck cancer; Free flap reconstruction

Introduction

Cancer of the head and neck and upper aerodigestive tract is the seventh most common cancer in the world,[1] and its increasing incidence among older patients is associated with higher disease-specific mortality (70% among patients aged over 60 years).[2–5] The US National Institute of Aging set the lower limit of "elderly" at 65 years, and subdivided them into three groups: the 65–74 age group was defined as "young old", the 75–84 age group as "older old" and those aged 85 years or more as the "oldest old".[6] Improvements in social and economic conditions together with advances in medical and surgical treatment have increased life expectancy; people are living longer than ever, and the oldest subgroup is increasing. Unfortunately, these factors are leading to an increase in the incidence of head and neck cancer among the oldest patients, and they require complicated operations and reconstructions for optimum cure with basic quality in life.

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The success rates of free flaps have facilitated reconstruction of large defects after resections in the head and neck.[7–13] Free flaps have the advantage that they can provide good, defect-adapted tissue to fill the surgical defect. However, many variables contribute to both surgical and medical postoperative complications that affect the final outcome. The factors associated with postoperative complications among the oldest patients (aged 85 years or over) after free flap reconstruction for cancers of the head and neck has not to our knowledge been adequately reported, and in this study we highlight the major challenges encountered in treating these patients.

Patients and methods

We designed a retrospective study of patients aged 85 or over who were treated in the head and neck department of a tertiary hospital from 2005-2015. Twenty-four patients fulfilled our criteria and had reconstructions with microvascular flaps after resection of cancers of the head and neck. Variables recorded included personal and clinical details, preoperative state of health, and coexisting conditions. All patients were assessed and scored according to the American Society of Anesthesiologists (ASA) classification system.[14]

The characteristics of the disease that we recorded included the site and histological diagnosis. The therapeutic factors included the operation, the duration of hospital stay, operating time, operative blood loss, the type of flap used for reconstruction, and additional procedures such as tracheostomy.

Postoperative morbidity was divided into surgical and medical complications. These were further sub-classified into major and minor. Surgical complications that required a second procedure such as bleeding from the tracheostomy and persistent local infections were classified as major, while self-resolving local wound infections and wound dehiscence were considered minor.

The possibly life-threatening complications[15] such as deep venous thrombosis and multiple organ dysfunction syndrome were classified as major medical complications. Non-fatal problems such as transient delirium and minor pulmonary infections were considered to be minor.

We used SPSS Statistics for Windows (version 17.0, SPSS Inc, Chicago, Ill, USA) for statistical analysis. To assess the significance of the factors related to postoperative complications in a univariate analysis we used Fisher's exact test. Factors that were significant in the univariate analysis, together with those thought important by other authors, were tested again in a multivariate analysis (logistic regression). Because of the small number of patients, probabilities of less than 0.01 were accepted as significant (Bonferroni correction).

Table 1
Clinical and personal characteristics of patients (n = 24).

Variable	Median or Number	Range
Age (years)	86	85-91
Sex:		
Male	15	–
Female	9	–
Smoking history	0	–
Alcoholism	0	–
Duration of stay in hospital (days):	23	14-59
ASA grade:		
II	18	–
III	6	–
Operating time (min)	420	310-705
Coexisting conditions:		
Yes	20	–
No	4	–
Operative blood loss (ml)	550	200-1500
Tracheostomy:		
Yes	16	–
No	8	–

Table 2
Coexisting conditions (some patients had more than one).

Coexisting conditions	Number
Chronic obstructive pulmonary disease	3
Diabetes	1
Hypertension	7
Hyperthyroidism	1
Nephrolithiasis	1
Coronary heart disease	5
Cholecystitis	2
Cerebral infarction	1
Anaemia	1
Ventricular premature beat	3
Benign prostatic hyperplasia	2

Results

A total of 24 patients (15 male and nine female) had their head and neck cancers treated by free flap reconstruction. Their median age was 86 (range 85-91). Table 1 shows their clinical and personal characteristics, and Table 2 their coexisting conditions. All the patients with coexisting conditions were seen by specialists for systemic disease control and fitness for surgery, and appropriate treatment was initiated if necessary.

All the patients had been diagnosed as having squamous cell carcinoma on histological examination, and the sites are shown in Table 3. The median (range) operating time was 420 (310-705) minutes, and the median operative blood loss 550 (200-1500) ml. Sixteen patients had prophylactic tracheostomies. All patients had uneventful operations followed by and successful integration of flaps. The median (range) duration of stay in hospital was 23 days (14 – 59) days. Table 3 shows the histopathological diagnoses and regions reconstructed.