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Case Summary Open Access

Life Threatening Lymphoedema in Head and Neck Cancer

Mranalini Verma[1] and Sanjay Singhal[2]*

[1]Department of Radiation Oncology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, lucknow, India
[2]Department of Pulmonary Medicine, Command Hospital, Lucknow, India

Case summary

61 year old male patient presented with the complaints of severe breathlessness, difficulty in swallowing and progressively increasing swelling all over face and neck to a local hospital where he underwent emergency tracheostomy and percutaneous endoscopic gastrostomy (PEG) for feeding. Eight years earlier, he was diagnosed to have carcinoma left tongue and underwent left hemiglossectomy with supra-omohyoid dissection followed by radiotherapy (60 Gy in 30 fractions). Thereafter, he remained asymptomatic for six years. Two years earlier, he had non-healing ulcer on right side of tongue (Figure 1), biopsy of which revealed undifferentiated squamous cell carcinoma on histopathology and diagnosed to have recurrence of tongue cancer on right side for which he underwent right hemiglossectomy with supra-omohyoid dissection followed by radiotherapy (45 Gy in 25 fractions) which he tolerated well with dry desquamation of skin and mucositis which was managed symptomatically.

General examination on present admission revealed temperature: 98°F, pulse rate: 102/minute, blood pressure: 120/72 mm Hg, respiratory rate: 18/minute and swelling all over face and neck with skin dehiscence watery discharge. Respiratory system examination revealed crepitation in right basal region on auscultation. Other systemic evaluation was unremarkable. Laboratory investigation revealed hemoglobin: 12.5 gm/dl, total leukocyte count of 21,400/cm^3 with neutrophil predominance (72%). Other biochemical and serological parameter were within normal limits. He was managed with broad spectrum antibiotics and other supportive care. Despite best supportive care, patient's condition continued to worsen and succumbed to his illness.

Discussion

Lymphedema is an accumulation of lymphatic fluid and proteins in the interstitial spaces [1]. Lymphedema may be either primary or secondary. Primary lymphedema is a rare, inherited condition in which lymph nodes and lymph vessels are abnormal or absent [2]. Secondary lymphedema is usually the consequence of cancer or its treatment, trauma and burns [3-4]. Secondary lymphedema is the most common form of lymphedema [5]. Many cancer patients, such as those with breast, ovarian, melanoma, and head and neck cancer develop secondary lymphedema as a result of lymph node dissection, radiation and chemotherapy [3,6]. Lymphedema is one of the under-reported but common side effects of head and neck cancer therapy. One recent study has shown that 75.3% of head and neck cancer patients were found to have lymphedema [7]. In the European literature, the prevalence of secondary lymphedema after head and neck cancer, whether with combined or single treatment, varies between 12% and 54% [8-11]. Some pathophysiological processes related to cancer treatment may precipitate lymphedema. Head and neck cancer treatment (surgery, radiation, and/or chemotherapy) disrupts lymphatic structures (e.g., surgical lymphadenectomy and injury of lymphatic vessels) and leads to an increased accumulation of lymphatic fluid in interstitial space. The retention of lymphatic fluid activates inflammatory/immune responses and results in skin tissue fibrosis and adipose deposition [12]. Skin tissue fibrosis further aggravates lymphatic function. Thus, lymphatic damage renders the lymphatic system unable to transport normal amounts of fluid and protein from the normal capillary filtration, which is the primary reason that lymphedema occurs after cancer treatment [3]. Because of this pathophysiological process, head and neck cancer patients are at high risk for developing secondary lymphedema [13,14]. Head and neck lymphedema may involve external structures (soft tissue of face and neck) as well as internal anatomic sites (mucous membranes and underlying soft tissues of the upper aero-digestive tract). Thus, head and neck lymphedema not only alters the patients' appearance, but also may cause functional impairment, such as speaking, breathing and swallowing [15-17]. Severe lymphedema may be life-threatening also (as in our case). Recent study have shown that tumor location, months since the end of head & neck cancer treatment, total dosage of radiation therapy, days of radiation, radiation status of the surgical bed and number of treatment modalities were significantly associated with the presence of head and neck lymphedema [7]. Management of lymphedema is supportive. Skin care, Compression, Massage and exercises are the four corner stone of supportive management. Skin care involves: washing the skin clean with mild soap with special attention to creases between digits and joints, use oil or moisturizers, dry with soft clean towel, use loose clothes, protect from direct heat and sunlight and avoid injection, venepuncture, sharp instruments. Compression can be given with proper bandaging in a graduated pressure manner

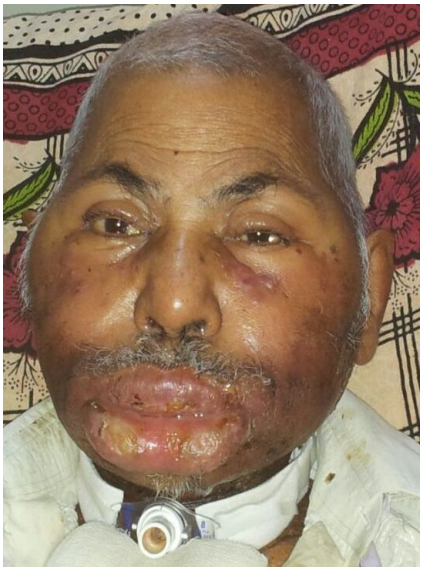

Figure 1: Non-healing ulcer on right side of tongue.

***Corresponding author:** Sanjay Singhal, Department of Pulmonary Medicine Command Hospital, Lucknow, India, Tel: 09198991155; E mail: drsanjaysinghal79@yahoo.co.in

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which helps in limiting fluid accumulation in subcutaneous tissue. Massage stimulates contraction of skin lymphatics which are usually intact thus improving superficial lymph drainage facilitating lymph flow from congested to non-congested area. Exercise reduces soft tissue edema and improves joint mobility which enhances the efficiency of the lymphatic pump which is further enhanced by wearing compression bandage during exercise. Other supportive care includes antibiotics for skin infection and tracheostomy for respiratory distress.

Conclusion

Healthcare professionals need to be aware that patients with HNC are at high risk of developing lymphedema following cancer treatment and need to conduct lymphedema assessment as a component of routine clinical examination.

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