

Relevance of Single Transverse Mid-Cervical Incision in Functional Neck Dissection. Original Study

Shaibal chatterjee*, Piyush kumar Agarwal

Corresponding Author; Shaibal Chatterjee

Abstract: Aim of study- This study has been done to analyse and assess the surgical ease and post-operative cosmetic and healing benefits of single transverse mid-cervical incision to perform functional neck dissection.

Methods- Our study is a retrospective single centre study including 25 patients operated for a period of nine months diagnosed with Oral cavity Squamous Cell Carcinoma (OSCC) with metastatic cervical lymph nodes identified in majority of cases. Total 32 neck dissections were done (21 modified radical neck dissections, 7 selective neck dissections, and 4 radical neck dissections) by application of single mid-cervical transverse incision.

Results- Adequate surgical accessibility and comfort was experienced during the entire surgical procedure for complete retrieval of regional cervical lymph nodes from desired levels of neck and involved structures along with primary resections. Minimum post operative complications reported with adequate wound healing with improved function and aesthetics was appreciated

Conclusion- Single mid-cervical transverse incision is adequate to provide complete surgical exposure to the neck structures for functional neck dissection along with primary resection and reconstruction without curtailing the surgical time and at the same time reducing patient's hospital stay with better cosmetic results compared to traditional neck dissection incisions.

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I. Introduction

The most important decisive factor affecting the prognosis of patients diagnosed with OSCC related to cervical lymph node status.[1] Logical technique for management of OSCC depends on block dissection of the regional cervical lymphatic system along with primary focus succeeding the Halsted's concept used to operate breast cancer[2]. Ablation of primary focus only is surgically insufficient as it intensify rapid tumour growth and regional and promotes regional dissemination[2], to meet this purpose Hayes martin proposed "commando" operation which suggested combined resection of the primary focus along with involved mandible together with neck dissection at the memorial hospital, New York. Variety of skin incisions was devised since neck dissection has been proven as the most surgically important step in the management of cases of OSCC [4]. The choice of particular skin incision to be used for neck dissection depends on various factors providing maximal operating field exposure, maintaining skin viability, preservation of major vessels in neck, allowing adequate healing and [5-6] acceptable cosmetic result. Most of the traditional incision used for neck dissection used a combination of transverse and longitudinal component forming tri-radiate point that was the principle site of wound dehiscence, flap necrosis and scar formation resulting in functional deformity. Macfee (1953) proposed application of two parallel incisions along cervical skin tension lines of langer which definitely improved aesthetics but conferred risk of cutaneous necrosis.[4]. In 1957 Attie proposed single transverse neck incision that lead to sufficiently best aesthetic outcome but was confronted due to enhanced difficulty for entire surgical clearance of suspected cervical lymph nodes.

II. Material And Method

Source of Data

We included 25 patients in our study diagnosed with OSCC; majority of them had cervical metastatic lymphatic disease from March 2019 to December 2019 in the department of surgical oncology of Asian Institute of Medical Sciences, Faridabad, Haryana. Patients aged ranged from 30 to 70 years. Among 25 patients 22 were male (88%) and 3 female (12%) exhibiting male predilection. Most of the patients included in our study had deleterious habits of chewing tobacco or betel nut and consuming alcohol exhibiting influence of epigenetic factors in developing OSCC. According to 8th edition AJCC staging was done for 25 patients included in our study (12 were T4aN2bM0, 3 were T2n1M0, 2 were T1N0M0).

SUGICAL TECHNIQUE

A single transverse mid cervical incision was made along Langer cervical skin tension lines initiated at the midline extending 2cm beyond anterior border of Sternocleidomastoid muscle (SCM) with surgical blade no.15. Superior and inferior Subplatysmal flap were raised with Electrocautery. Superior flap was elevated up to lower border mandible and inferior flap was raised up to Clavicle . Anterior and posterior limits were demarcated by strap muscles and SCM. Superior belly of Omohyoid muscle was sacrificed to access level IV group of cervical lymph nodes and identification of Inferior jugular vein anteroinferior below inferior Subplatysmal flap. Surgical time ranged from 60 minutes to 75 minutes for complete retrieval of cervical lymph nodes from desired neck levels. Skin closure was done after achieving satisfactory haemostasis and surgical drain placement with 2-0 Monocryl suture.

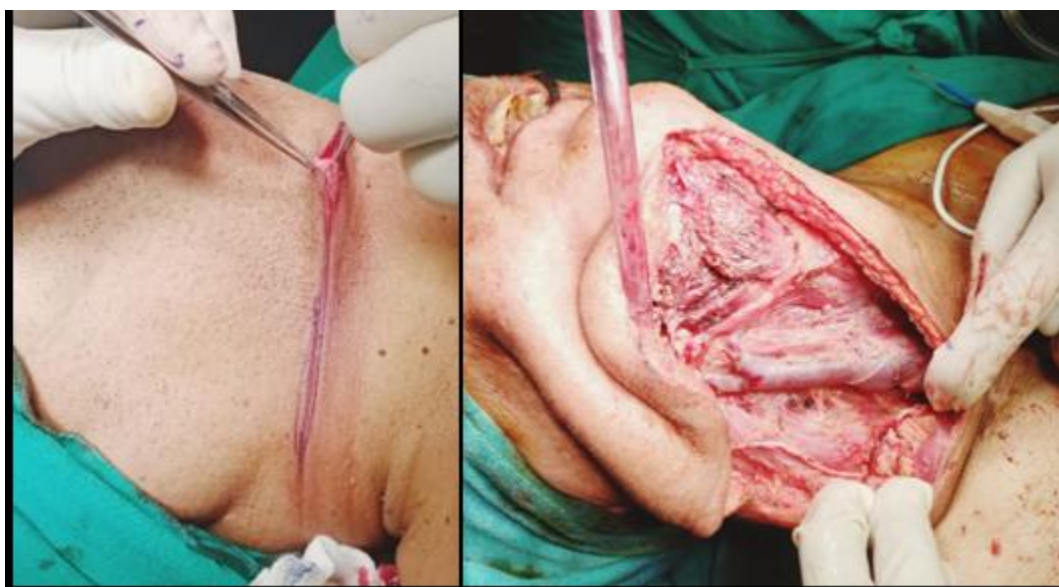


Fig 1

Fig 2

III. Results

All patients were operated with surgical ease to assess the involved cervical group of lymph nodes using single mid cervical transverse incision except sub mental group and posterior triangle (level V) group of cervical lymph nodes were additional retraction was required to improve accessibility. All patients were monitored for period of 12 weeks to isolate postoperative complications such as wound dehiscence, chronic cervical pain, shoulder girdle stiffness and scar tissue formation. None of our patients developed from any of the above mentioned complications. We replaced skin staple by 2-0 Monocryl suture for skin closure that added to better cosmetic outcomes without any scar tissue formation postoperatively.

IV. Discussion

Neck dissection is considered as most important key for management of cases of oral cavity cancers .It is contemplated as the surgical procedure with unparalleled therapeutic benefits in the medical literature [8-9]. Radical neck dissection (RND) described by Crile in year 1906 is the most standard and ideal for management of cervical regional node metastasis. Evolution of neck dissection from its radical form to modified and selected form was appreciated significant aesthetic and functional deformity witnessed due to sacrifice of SCM, spinal accessory nerve and IJV inspired to modify the traditional form of neck dissection conserving few or entire non lymphatic neck structures improving patients quality of life without any difference in prognosis. There has been improved understanding of cancer biology due to immense research work done in the field of oncology in the recent years combined with advances in anaesthesiology and postoperative care works together for providing better life to cancer patients[10]. Variety of incisions and there modifications can be used to facilitate neck dissection ranging from the traditional incisions like Martin's double trifurcate incision, Crile and Shrobiner single trifurcate incision. Traditional incision comprised of a longitudinal component and transverse component forming a trifurcate point that may undergo necrosis due to inadequate vascular supply especially in diabetic patient and patient with compromised immune system exposing underling neck vasculature [10-11].

The longitudinal component of this traditional skin incision applied at right angle to langer skin tension lines of neck resulting in keloid formation and scar retraction with inadequate wound healing [11].

Scar retraction is a source of chronic pain and discomfort resulting in restricted shoulder girdle muscle movement degrades patient life especially in female patient. The recent practice of neck dissection suggests a

versatile surgical incision that provides utmost surgical exposure of underlying neck structures to achieve adequate access to the involved cervical lymph nodes located at different neck levels, adequate vascular supply to surgical flaps allowing rapid and satisfactory wound healing with good aesthetic outcomes [13-14]. Mcfee in the year 1953 proposed two parallel incisions along longer skin tension lines of neck was beneficial to the patient by avoiding postoperative complications associated with the longitudinal component of the traditional incisions with improved cosmetic results but Mcfee incision had a potential risk of flap necrosis due to pedicle extension [12]. The application of single transverse mid cervical incision proposed by Attie justifies most of the criteria of being an ideal incision to perform functional neck dissections. We applied single transverse mid cervical incision in all patients included in our study which provided unmatched aesthetic outcomes with adequate access and visibility to retrieve all the involved desired cervical lymph nodes from different levels of neck together with primary dissection. The visual curve limitation was definitely experienced compared to traditional skin incisions at level 1a(sub mental group) and level IV (lower jugular group) due to application of single mid cervical transverse incision which can be easily overcome after few cases under supervision without any significant difference of surgical clearance of suspected cervical lymph nodes from different neck levels.

V. Conclusion

On the basis of review of literature and our experience incorporated in this study concludes that single mid-cervical transverse incision is sufficient to provide satisfactory surgical exposure for complete retrieval of affected cervical lymph nodes from desired levels along with primary resections and reconstruction with excellent aesthetic outcomes.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institution and/ or national research committee and with the 1964 Helsinki declaration and its lateral amendments or comparable ethical standards.

Conflict of interest

All authors declare no conflict of interest related to article

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References

- [1]. Shah J P(1990) : Patterns of cervical node metastasis from Squamous cell carcinoma of the upper aero digestive tract. The American journal of surgery 160, 405-409
- [2]. Crile G W (1906): Excision of cancer of the head and neck. JAMA 76, 975-87
- [3]. Stephan (1986): Radical neck dissection. Surgical clinics of North America 66, 133-147
- [4]. Macfee (1960)W F: transverse incision for radical neck dissection. Ann surg 151, 279-84
- [5]. Acar A, Dursun G, Aydino, Akbas Y(1998): J incision in neck dissection. J laryngol otol 112, 55-60
- [6]. Jose F S C, Maria B N P, Jose B A, Luis A B, Evandro V Z P, Ana S P T, Otavio A C, Rogerio A D (2018): single transverse extended incision for Radical neck dissection. JOCR 2(1),1-4
- [7]. Attie J N, Booklgn N Y(1957): A single transverse incision for radical neck dissection surgery 41,498-502
- [8]. David E Ebling: Neck dissection. Johns Hopkins medicine chapter 78, 679-687
- [9]. White k Musdell D M, Morris D: Mcfee incision (1973): A safe approach to the neck. South med J 868- 71 1973
- [10]. Liu J C, Shah J P(2010): surgical technique refinement in head and neck oncologic surgery. Journal of surgical oncology 101(8) 661-668
- [11]. Brown J B, Mc Dowell F(1944): Neck dissection for metastatic carcinoma. Surg gynae obst 79 115-24
- [12]. Chagas(2016): single transverse extended incision for radical neck dissection. Rev Col Bras. Cir 43 (4) 270-275
- [13]. Shah H J(1988): A Modification of Mcfee incision for neck dissection. The Journal of laryngology and otology 102 1124-26
- [14]. Bocca E ,Pignataro O, Saki T(1980): Functional neck dissection. Arch otolaryngol106 (47) 1780-86
- [15]. Gunjan et al(2018): comparison of standard modified Shrobingers incision versus cervical incision for neck dissection-our experience. Otolaryngology case report 6 47-50
- [16]. Vercelli S, Ferriero G, Sartorio F, Stissi V, Franchigoni F(2009): How to assess postsurgical scars -a review of outcome measures. Disabil Rehabil 31 2055-63

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