Treatment of the Salivary Duct Carcinoma of the Submandibular Gland with En Bloc Resection and Pectoralis Major Myocutaneous Flap: a Case Report

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บทคัดย่อ: การรักษามะเร็งของต่อมน้ำลาย submandinbular ด้วยวิธีผ่าตัดแบบ en bloc และ pectoralis major myocutaneous flap: รายงานผู้ป่วย

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นับตั้งแต่มีการพัฒนาเทคนิคการผ่าตัดแบบจุลศัลยกรรมจนเป็นที่แพร่หลายในในปัจจุบัน การผ่าตัดปลูกถ่ายเนื้อเยื่อแบบ free flaps ซึ่งเป็นการย้ายเนื้อเยื่อจากตำแหน่งเดิมไปปลูกถ่ายในตำแหน่งใหม่โดยใช้เทคนิคทางจุลศัลยกรรม ถือเป็นมาตรฐานใหม่ในการทำศัลยกรรมตกแต่งและเสริมสร้าง แต่วิธีผ่าตัดแบบ free flaps ยังมีข้อเสียหลายประการเมื่อเปรียบเทียบกับการใช้ regional flap แบบดั้งเดิม เช่นการเข้าถึงอุปกรณ์ ระยะเวลาการผ่าตัดที่ยาวนาน และเทคนิคการผ่าตัดที่ยุ่งยากกว่า วัตถุประสงค์ของรายงานฉบับนี้คือ แสดงถึงประโยชน์ของการใช้การปลูกถ่ายเนื้อเยื่อข้างเคียงชนิด pectoralis major myocutaneous flap ซึ่งเป็นการใช้เทคนิคการผ่าตัดแบบไม่ต้องใช้วิธีทางจุลศัลยกรรมในผู้ป่วยมะเร็งของต่อมน้ำลาย submandibular ด้านขวา กรณีศึกษา เป็นผู้ป่วยหญิง อายุ 41 ปี มาโรงพยาบาลก้อนโตช้าที่บริเวณใต้คางขวา ผลการวินิจฉัยด้วยเทคนิคการย้อมพิเศษทางอิมมูโนฮิสโตเคมี พบเป็นมะเร็งของต่อมน้ำลายชนิด salivary duct carcinoma ผู้ป่วยได้รับการผ่าตัดต่อมน้ำลายด้านขวา และทำการผ่าตัด en bloc เนื้อเยื่อบริเวณข้างเคียงทำให้มีแผลเปิดขนาดใหญ่เป็นรูปสามเหลี่ยมขนาด 20x15x14 ซม.ศัลยแพทย์ทำการผ่าตัดปิดแผลด้วยการใช้เนื้อเยื่อข้างเคียงชนิด pectoralis major myocutaneous flap การติดตามผลการรักษาพบว่า รูปร่างและการทำงานของเนื้อเยื่อที่ปลูกถ่ายเป็นไปด้วยดีหลังการผ่าตัด

คำสำคัญ: มะเร็งของต่อมน้ำลาย submandibular, การการปลูกถ่ายเนื้อเยื่อข้างเคียงชนิด pectoralis major myocutaneous flap

Abstract:

Due to an improvement of microvascular techniques in recent years, free flaps are recognized as a gold standard in reconstructive surgery. But there are disadvantages of free flaps surgery such as instruments accessibility, increased operative time and complicated surgical techniques. The objective of this article was to show the advantages of a large cervical defect reconstruction with pectoralis major myocutaneous flap (PMMF) in a challenging clinical case. A 41 years old woman presented with right submandiblar mass. A diagnosis of salivary duct carcinoma (SDC) of right submandibular gland was confirmed by immunohistological technique. En bloc resection of submandibular area left a large triangular cervical defect of 20x15x14 cm. The pectoralis major myocutaneous flap (PMMF) was used as a reconstructive choice to resolve this problem. Post-operative follow up of the flap showed good functional and aesthetic result.

Keywords: Submandibular gland tumor, Salivary duct carcinoma, Pectoralis major myocutaneous flap

Introduction

The pectoralis major myocutaneous flap (PMMF) has long been used in head and neck oncologic reconstruction defects. The versatility of the vascular pedicle, and its proximity to the several surgical defects created in the region, established this flap as the standard procedure for large head and neck reconstructive

defects in the 1980s and 1990s.[1-5] Since the introduction of free flaps technique in 1960s, the PMMF has been outdated for most reconstructive surgeons.[5-7] However, this flap is still used in head and neck reconstruction, especially after resection of locally advanced tumors, as a salvage procedure after microvascular free flap failure, or when there is a lack of instruments to perform micro-surgical reconstruction , especially in those involving the large defect of the head neck area.[6,7]

The prevalence of salivary gland tumors varies between studies, but has been estimated to be 1-4% of all head and neck tumours. Neoplasms that arise in the salivary glands represent a wide variety of both benign and malignant histologic subtypes.[8] Approximately 70% of the salivary gland tumors affect parotid gland with the submandibular gland being affected in 5-10% of the cases, sublingual gland in 1% and minor glands in 5-15% of the cases.[8-10] Salivary duct carcinoma (SDC) is an aggressive malignancy that most commonly arises in the parotid gland. Few case reports describe SDC occurring in the submandibular gland. SDC is an important differential diagnosis of metastatic disease in cervical lymph nodes due to the locally early metastasis of SDC .[11,12]

Case Report

A 41-year-old woman visited the ENT department of Police General Hospital with the chief complaint of right slow growing painless neck mass for 1 year with no bleeding associated with the swelling. The patient noticed rapidly increase in size of the mass and her right lower lip had dropped for 2 months. Her past medical history was not significant. On physical examination, a 7x5 cm firm consistency mass was palpable at right angle of mandible. A 3 cm posterior right cervical lymph node was palpable. The patient also had right mandibular branch facial nerve palsy. A provisional diagnosis of right submandibular gland tumor was given based on history and examination findings. FNA of the mass revealed features of atypical cells and malignancy cannot be excluded. Right submandibular gland resection with cervical lymph node level 5 resection with primary closure was performed 1 week later (first operation). Sections of the mass displayed malignant cells arranging in solid sheet, cluster and cribriform pattern. Some areas filled by neoplastic cells with comedonecrosis were also seen. Neoplastic cells had mildly pleomorphic nuclei with distinct nucleoli. Mitotic figures were occasionally seen. Lymphovascular and perineural invasion were presented. Two metastatic lymph nodes were detected. Fibromuscular tissue from masseter mass was also involved by malignant neoplasms. The margins were positive for malignancy. The immunohistochemical markers favored to be salivary duct carcinoma. The androgen receptor was positive. Right modified radical neck dissection (second operation) was done 2 weeks later from the first operation and the pathological result revealed 13 from 22 lymph nodes containing metastatic lesions with extranodal extension. Very close resection margin less than 0.1 cm. was found.

Approximately one month later from the first operation, the patient underwent en bloc resection of the submandibular area (third operation) left a large cervical defect. Plastic surgeon was consulted to close the defect. pectoralis major myocutaneous flap (fourth operation) was performed two days later to close the defect. Pathological result found 3 lymph nodes with metastatic SDC, the separated nerve and vessel showed perivascular neoplastic infiltration. The superior, inferior, lateral and deep margin was free of tumor. Medial margin was close to the resection less than 0.1 cm.

CT neck, chest and upper abdomen after the third operation showed several bilateral cervical lymphadenopathy with pulmonary metastasis but no liver metastasis. Four months after the PMMF reconstruction (figure 8) , the aesthetic result of the recipient site was good with no bulging of the flap. The flap help successful local radiotherapy of the tumor area. The patient still has regular follow up with good response to chemotherapy and radiotherapy (last visit on 28th Dec 2020,post PMMF reconstruction 9 month)

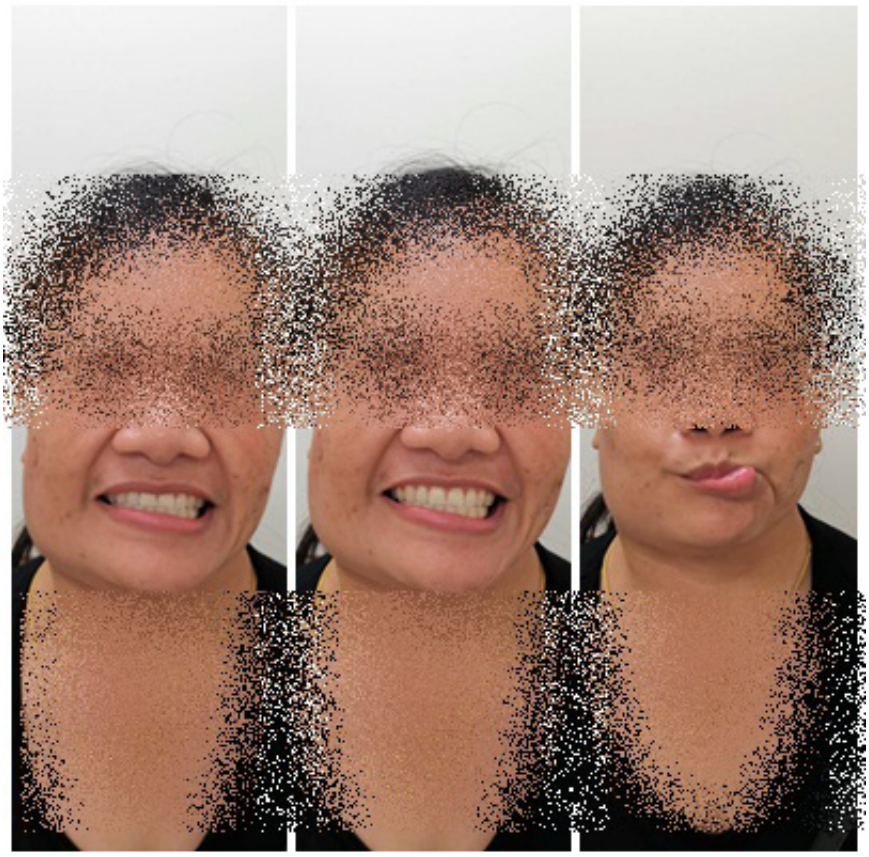

Figure 1 Rt. submandibular mass with mandibular branch facial nerve palsy

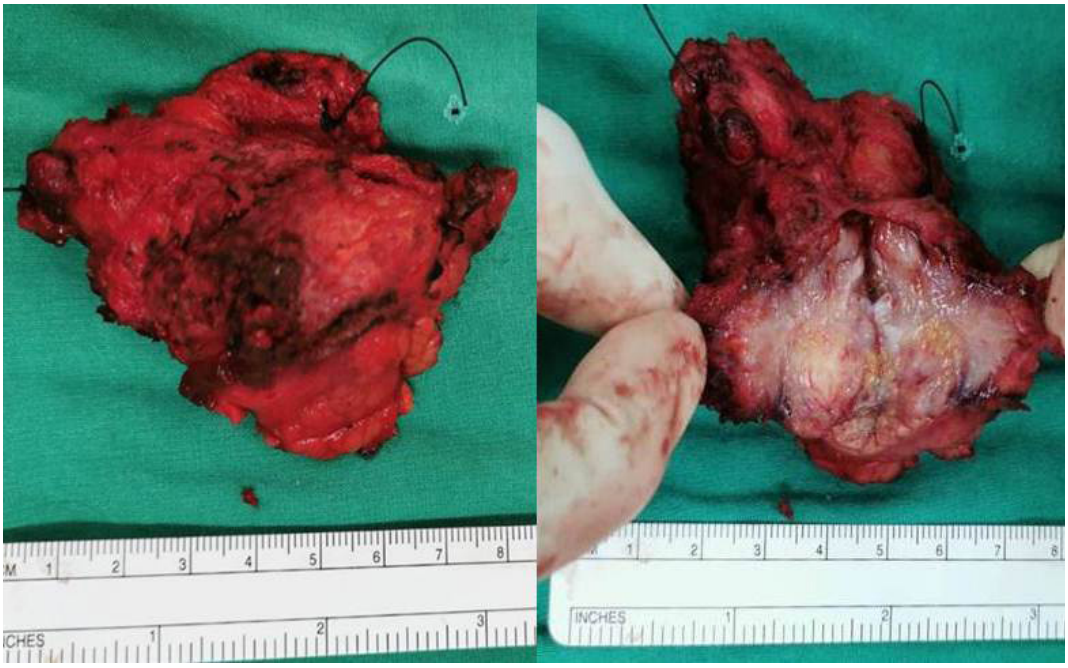

Figure 2 Rt. submandibular tumor measuring 8x5x2 cm, weighing 41 gm,
cut surface showed ill-defined firm grey tan mass measuring 4.5x2.7x2.7 cm

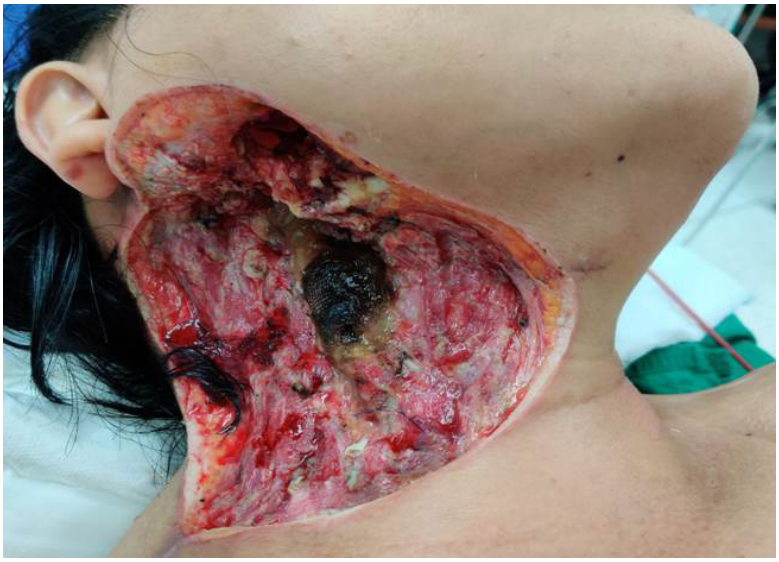

Figure 3 large cervical defect after en bloc resection

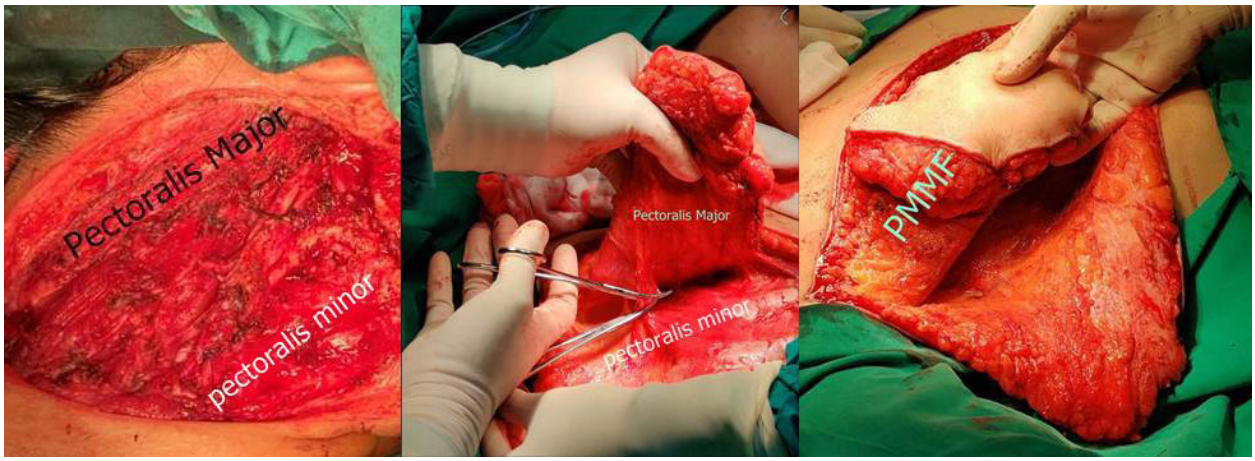

Figure 4 Harvesting a pedicled pectoralis major myocutaneous flap (PMMF) with a 20x15x14 cm skin paddle, including the lateral thoracic vessels.The pectoralis minor muscle was divided around the lateral thoracic vessels to enable the supply of blood to the PMMF.

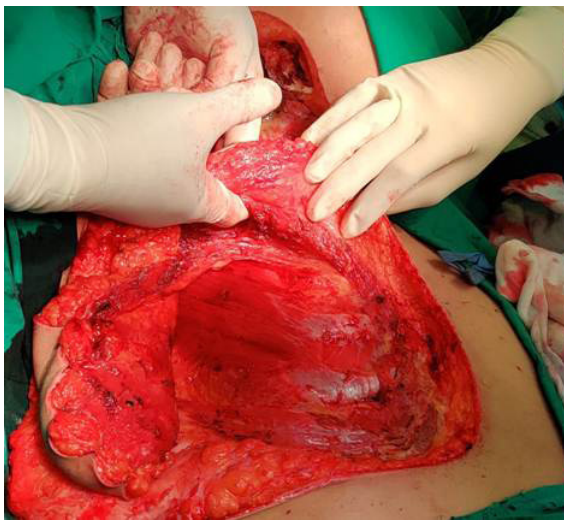

Figure 5 The entire PMMF was moved safely and rotated toward the recipient site above the clavicle. Skin paddle reached adequately the defect without tension.

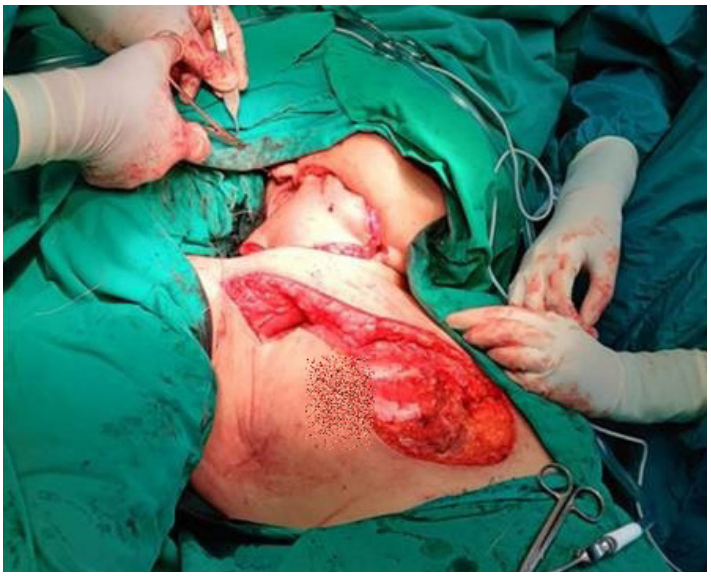

Figure 6 The large defect was closed with a PMMF with a 20x15x14 cm skin paddle. Despite the large dimensions of the skin paddle, a primary closure of the donor site was successfully performed without any complication.

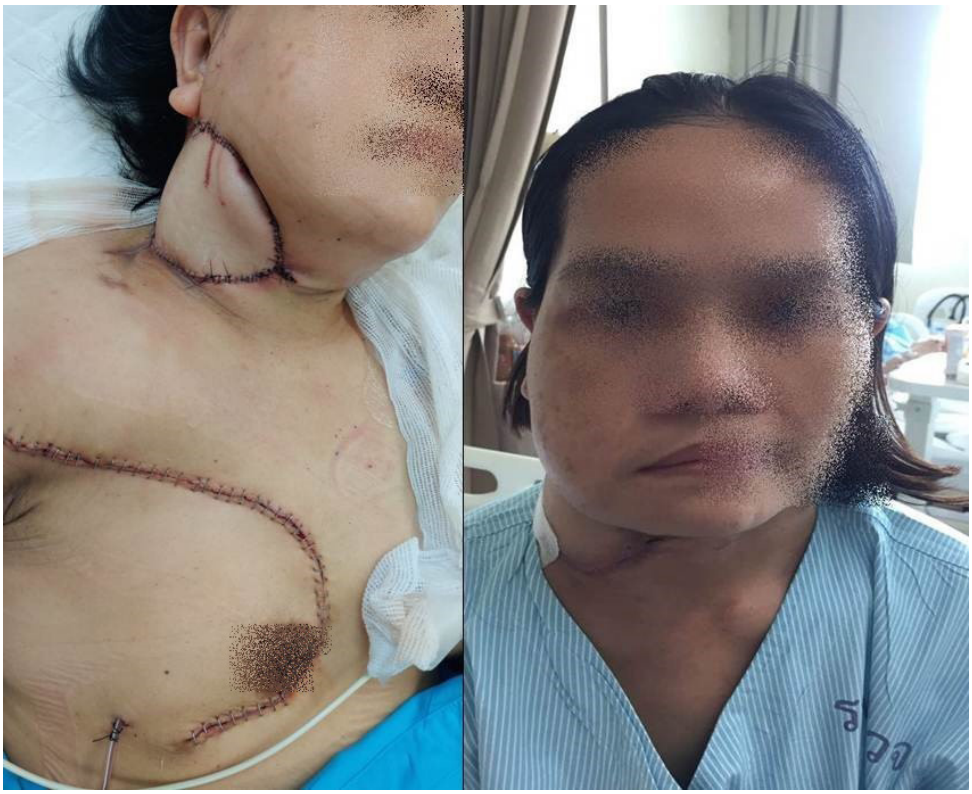

Figure 7 Recipient site and donor site 3 days and 2 weeks after the operation.

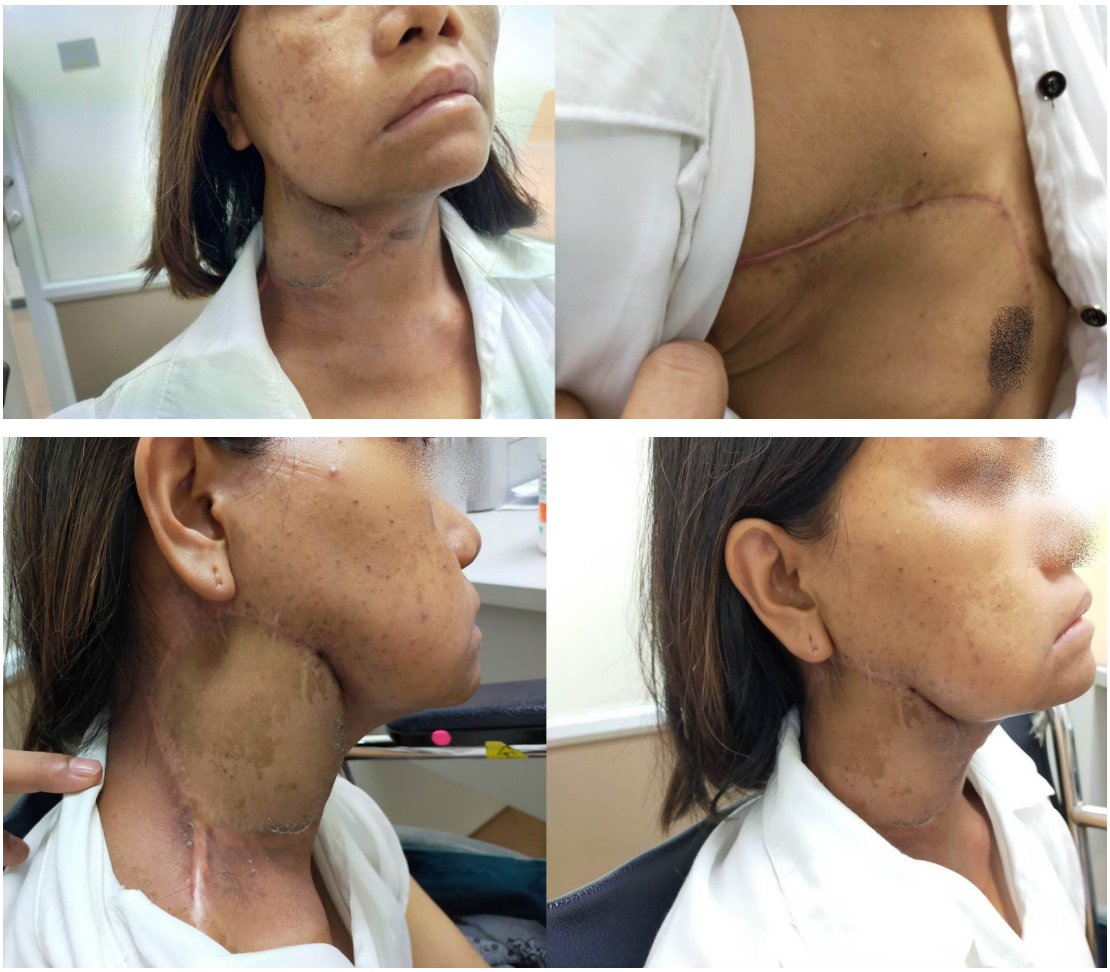

Figure 8 Recipient site and donor site 4 months after the operation showed flattening of the flap and good aesthetic result with mild skin dryness due to local radiotherapy.

Figure 9 9 months after the operation (28 Dec 2020) , PMMF showed good aesthetic and functional results (All Images were allowed to be published by patient and relatives.)

Discussion

The main problems of cervicofacial malignant tumor surgery are how to spare surrounding critical tissue such as important nerves and vessels with complete surgical resection and adequate free magin.[13] Sometimes the salvage surgery leaves a large defect, the surgeon has to consider tools to close the defect. If there are nerve, vessel, bone exposure or the patient need post-operative adjuvant radiotherapy, just a simple graft is inadequate.[1,3,4]

In this case, advance salivary duct carcinoma of right submandibular gland with lung metastasis was the diagnosis. The patient underwent en bloc resection of right submandibular area with a large cervical defect and was planned to have postoperative radiotherapy and chemotherapy. Following the discussion of the surgical planning with the patient and her husband, the plastic surgeon decided to use pectoralis major myocutaneous flap which has more successful rate, less complication and less operative time than tensor fascia lata free flap to close the defect.[5,7]

The pectoralis major myocutaneous flap (PMMF) has long been used in head and neck oncologic reconstruction defects over the past two decades.[1-4] Compared with local flaps (e.g., temporalis myofascial flap), it provides a larger coverage.[3,5] PMMF complications rates are low comparable to those of microvascular free flaps.[5-7] The main problem of PMMF is related to its poor vascular supply to the distal portion of the skin paddle,[1-5] so surgeon has to avoid tension of the flap during the operation. In this case the skin paddle size is 20x25 cm. Surgeon chose supraclavicular route to decrease surrounding tissue trauma and pressure on the flap to restore large size skin paddle. The flap length adequately reached the defect without tension. The operative time in this case was 3 hours.

After the operation, the patient was referred to oncologist and radiologist to have chemotherapy and radiotherapy. She has a regular flap follow up with mild skin paddle dryness from radiotherapy. The aesthetic result of the flap is good.

Conclusion

Due to improved microsurgical techniques in recent years, free flaps are recognized as gold standard. But in several cases the PMMF still has its advantages, including in large defect of head and neck reconstruction, the simplicity of harvesting, and its use as an alternative when microsurgical flap failure occurs.

In this case, after treatment of salivary duct carcinoma (SDC) of right submandibular gland with en bloc resection, a large cervical defect was successfully closed with PMMF. The flap showed good aesthetic and functional results. The patient had good response to chemotherapy and radiotherapy.

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