J. Maxillofac. Oral Surg. (Oct–Dec 2019) 18(4):648–650
https://doi.org/10.1007/s12663-019-01212-1

SHORT COMMUNICATION

Pedicled Supraclavicular Flap for Neck Defect Reconstruction in Poland Syndrome

Charles Yuen Yung Loh[1,2] · Waseem Ullah Khan[1] · Naguib El-Muttardi[1]

Received: 11 November 2018 / Accepted: 13 March 2019 / Published online: 19 March 2019

Abstract
Introduction The most accepted pathogenesis for Poland syndrome is the subclavian artery supply disruption sequence during embryonic growth. The result is associated with a constellation of abnormalities of structures supplied by the subclavian artery. We present a case of a neck defect reconstructed with a fasciocutaneous supraclavicular flap in a patient with Poland syndrome with the absence of a pectoralis major muscle. To the best of our knowledge, this is the first report of the use of the supraclavicular flap in patients with Poland syndrome.
Methods An 80-year-old patient with a 14-mm-Breslow-thickness melanoma had undergone a 3-cm-wide local excision of the scar on his right neck and reconstruction with a pedicled supraclavicular flap despite him having Poland syndrome on the same side.
Results The flap was well perfused, and the patient was discharged at postoperative day 5. Complete healing of the flap was observed without any flap loss.
Conclusion The supraclavicular fasciocutaneous flap is a versatile and useful pedicled flap reconstruction for head and neck defects. It is possible in patients with Poland syndrome as shown, and the pedicle should be checked with preoperative Doppler and an exploratory incision before completely raising it.

Keywords Supraclavicular flap · SASDS · Subclavian artery supply disruption sequence · Pedicled flap · Head and neck reconstruction · Fasciocutaneous flaps · Pectoralis major flap · Melanoma · Neck defect · Poland syndrome

Dear Sir,

The most accepted pathogenesis for Poland syndrome is the subclavian artery supply disruption sequence (SASDS) during embryonic growth. The result is associated with a constellation of abnormalities of structures supplied by the subclavian artery [1]. Pedicled flaps that are commonly used in the reconstruction of head and neck defects are associated with muscles supplied by the subclavian artery such as the pectoralis major and latissimus dorsi. Most of these muscles are abnormal in Poland syndrome. The supraclavicular flap is a fasciocutaneous flap [2] based on the perforator from the transverse cervical artery or suprascapular artery, which in turn is a branch of the subclavian artery [3]. We present a case of a neck defect reconstructed with a fasciocutaneous supraclavicular flap in a patient with Poland syndrome with the absence of a pectoralis major muscle. To the best of our knowledge, this is the first report of the use of the supraclavicular flap in patients with Poland syndrome.

An 80-year-old patient with a 14 mm Breslow thickness superficial spreading melanoma on the right neck presented to us for a 3-cm-wide margin local excision. Scar was excised down to deep cervical fascia. A 10 × 8 cm defect on the right neck with exposed external jugular vein, tail of parotid and greater auricular nerve was then reconstructed with a pedicled supraclavicular flap. With the presence of

✉ Charles Yuen Yung Loh
chloh_yy@hotmail.com

✉ Naguib El-Muttardi
muttar6@hotmail.com

[1] St Andrew's Centre for Burns and Plastic Surgery, Broomfield Hospital, Court Road, Chelmsford, Essex CM1 7ET, UK

[2] Department of Plastic Surgery, Center for Vascularized Composite Allotransplantation, Chang Gung Memorial Hospital, 5 Fu-hsing Street, Gueishan 333, Taoyuan, Taiwan, ROC

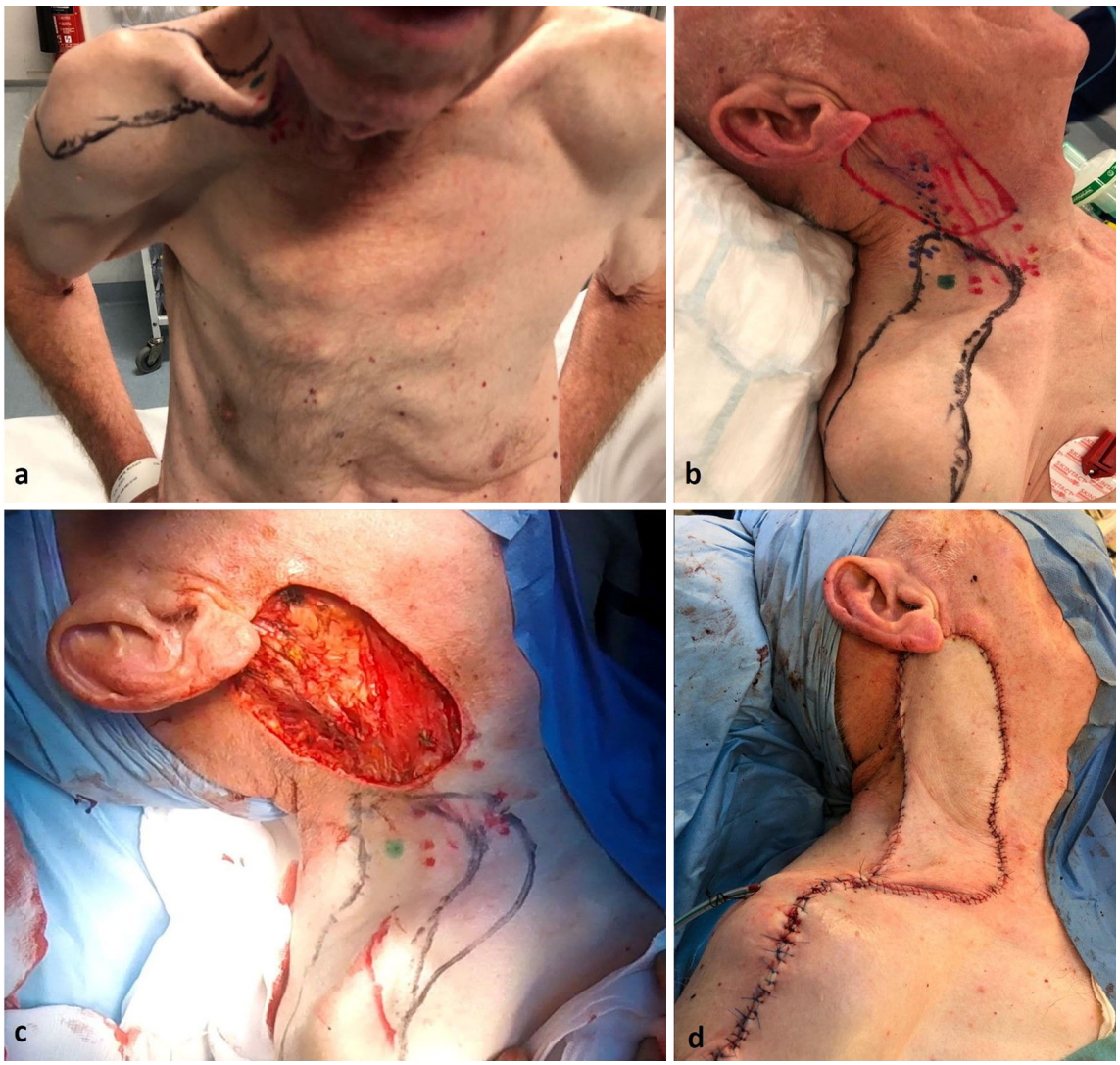

Fig. 1 **a** Photograph of a patient with Poland syndrome and an absent pectoralis major on the right. **b** Photograph of the markings for the 3-cm-wide local excision of the 14-mm-thick melanoma scar (red) and supraclavicular flap markings (black). **c** Intraoperative photograph of the defect with exposed parotid gland. **d** Supraclavicular pedicled flap inset with 180° rotation to cover the neck defect and direct closure of the donor site

other comorbidities, a pedicled flap was preferred. The absence of the pectoralis major on the right side prevented its use. A Doppler signal was heard in the region of the supraclavicular perforator flap which is in the triangle between the lateral border of the sternocleidomastoid muscle, clavicle and external jugular vein. The supraclavicular flap was raised from distal to proximal at a subfascial level with identification of a sizable perforator despite the presence of Poland syndrome and theoretical disruption of the subclavian artery. The flap was then elevated and rotated 180° to cover the neck defect (Fig. 1). The flap was perfused without issue, and the patient was discharged at postoperative day 5 (Fig. 2).

The supraclavicular fasciocutaneous flap is a versatile and useful alternative for pedicled flap reconstruction for head and neck defects. Elderly patients with complex comorbidities may have challenging problems for free flap reconstruction [4, 5]. Early reconstruction and discharge from hospital should be the priority in such cases. In Poland syndrome, patients with SASDS may have limited options for head and neck reconstruction. Checking for the presence of the supraclavicular perforator at the base of the neck in such patients with a Doppler device and an exploring incision may be useful to identify the pedicle before completing the raise of the flap.

Fig. 2 Photographs of the patient head turned left (left) and in neutral (right) at 2 months postoperatively

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Yiyit N, Işıtmangil T, Öksüz S (2015) Clinical analysis of 113 patients with Poland syndrome. Ann Thorac Surg 99(3):999–1004
2. Pallua N, Maches HG, Rennekampff O et al (1997) The fasciocutaneous supraclavicular artery island flap for releasing postburn mentosternal contractures. Plast Reconstr Surg 99:1884–1978
3. Lamberty BG, Cormack GC (1983) Misconceptions regarding the cervico-humeral flap. Br J Plast Surg 36(1):60–63
4. Löfstrand J, Chang KP, Lin JA, Loh CYY, Chou HY, Kao HK (2017) Third repeat microvascular reconstruction in head and neck cancer patients aged 65 years and older: a longitudinal and sequential analysis. Sci Rep 7(1):15740
5. Loh CYY, Shanmugakrishnan RR, Nizamoglu M, Tan A, Duarte M, Khan WU, El-Muttardi N (2018) Venous congestion in pedicled frontal branch superficial temporal artery flaps reconstructions for head and neck defects: a review. Ann Plast Surg. https://doi.org/10.1097/SAP.0000000000001602