

## Introduction

Treatment of recurrent and intractable fistula after multiple craniotomies or postoperative radiation therapy is challenging. The perifascial areolar tissue (PAT) is the thin layer below the fatty tissue and immediately above the deep fascia, which contains rich vascular plexus. The PAT above the abdominal rectus muscle or gluteus maximus muscle can be safely harvested, and implanted under the skin to cover the fistula sufficiently. Here we report three cases with intractable skin defect following craniotomy successfully cured by means of PAT.

## Methods

Three patients (2 women; age 60-81 years) between March 2015 and February 2017 who had a PAT transplant were reported. Two patients after multiple craniotomy and one after radiation therapy had skin defect which could not be cured by original debridement followed by suturing on multiple occasions. For Pat transplantation, we selected the inguinal region in tow and the gluteus maximus muscle in one as donor site. Successful engraftment was judged with visual inspection by senior doctor (T.K.), and thereafter whether the wound dehiscence was followed up in out-patient clinic.

## Results

The mean duration of successful engraftment was 14.7 days. (14-16 days)

During the mean follow-up period of 7 months (1-17 month) no recurrence occurred.

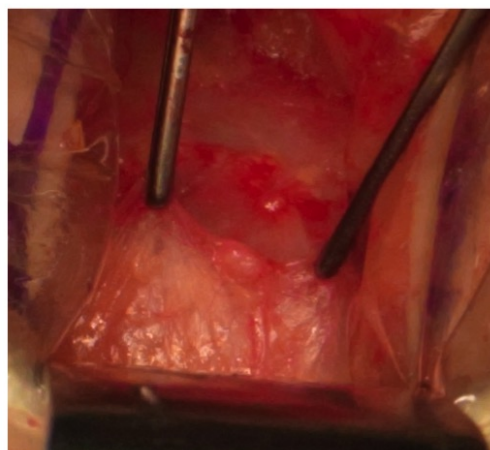
## Conclusions

PAT is likely safe and effective for treatment

## References

- 1) Casanova R, Cavalcante D, Grotting JC et al: Anatomic basis for vascular outer-table calvarian bone flaps, *Plast Reconstr Surg*, 78: 300-308, 1986
- 2) Hachiya A, Imamura R, Parra ER, Histologic study of perifascial areolar tissue implanted in rabbit vocal folds: an experimental study, *Ann Otol Rhinol Laryngol*, 119: 707-715, 2010
- 3) Hayashi A, Komoto M, Tanaka R et al: The availability of perifascial areolar tissue graft for deep cutaneous ulcer coverage, *J Plast Reconstr Aesthet Surg*, 68: 1743-1749, 2015
- 4) Hayashi N, Mitsuya K, Gorai K et al: A novel graft material for preventing cerebrospinal fluid leakage in skull base reconstruction; technical note for perifascial areolar tissue, *J Neurol Surg B skull Base*, 76: 7-11, 2015
- 5) Kamoshima Y, Terasaka S, Oyama A et al: A cranial reconstruction using an autologous split calvarial bone combined with a free graft of temporal loose areolar tissue, *No Shinkei Geka*, 40: 407-412, 2012
- 6) Koizumi T, Nakagawa M, Nagamatsu S et al: The versatile perifascial areolar tissue graft: adaptability to a variety of defects, *J Plast Surg Hand Surg*, 47: 276-280, 2013
- 7) Miyake Y, Kusumoto K: Treatment of heel pressure ulcers by perifascial areolar tissue (PAT) grafting aiming at optimal wound bed preparation, *Jpn J PU*, 13: 589-594, 2011
- 8) Nakajima H, Imanishi N, Minabe T et al: Anatomical study of subcutaneous adipofascial tissue: a concept of the protective adipofascial system (PAFS) and lubricant adipofascial system (LAFS), *Scand J Plast Reconstr Surg Hand Surg*, 38: 261-266, 2004
- 9) Tolhurst DE, Carstens MH, Greco RJ et al: The surgical anatomy of the scalp, *Plast Reconstr Surg*, 87: 603-612, 1991

**Fig 1**



**Fig 2 A, B**



The preoperative (A) and postoperative (B) view of surgical skin. Preoperative view shows an intractable fistula (A, an arrow). Postoperative view shows the successfully cured, health skin.(B)

**Table 1**

	Age	Underlying disorder	Preceding craniotomy	Outcome	Duration For cure (day)	Duration of follow up (month)
Case 1	60	DM	F-T and bil F C	Cure	14	17
Case 2	74	After RT	F-T C in twice	Cure	14	3
Case 3	81	None	SO C In twice	Cure	16	1

Characteristics of cases. (DM; diabetic mellitus, RT; radiation therapy, F-T C; front-temporal craniotomy, bil FC; bilateral frontal craniotomy, SO C; sub occipital craniotomy)