

# High Flow Extracranial-Intracranial Bypass for the Treatment of Extensive Recurrent Nasopharyngeal Carcinoma in the Orientals: A Retrospective Review

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## Disclaimer

The author of this review declares no conflict of interest.



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## Introduction

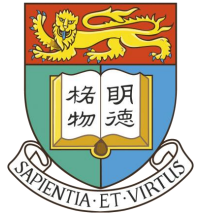
- Nasopharyngeal carcinoma (NPC) is a common cancer in the Orientals
- Surgery serves as salvage therapy when non-surgical therapies have failed
- Intracranial involvement and close internal carotid artery (ICA) proximity have been considered contraindications to operation in many centres [1]
- Extracranial-intracranial (ECIC) bypass operation allows radical resection in locally advanced tumours
- This is a retrospective review of the treatment outcomes of ECIC bypass operations performed in conjunction with NPC resections in Queen Mary Hospital, Hong Kong, with a focus on bypass success, patency and survival



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## Method

- Retrospective study
- Patient characteristics, graft outcomes and survival were retrieved and analysed
- Preoperative and operative procedures
  - Pre-operative magnetic resonance imaging and digital subtraction angiography
  - Operative procedures
    - First stage extracranial-intracranial vascular bypass on ipsilateral side
      - Radial artery graft or saphenous vein graft
      - Anastomosis of graft to M2 portion of middle cerebral artery and common carotid artery or external carotid artery
    - Second stage craniofacial resection
      - Performed ten to fourteen days later
      - Nasopharyngeal tumour resected with internal carotid artery (ICA)

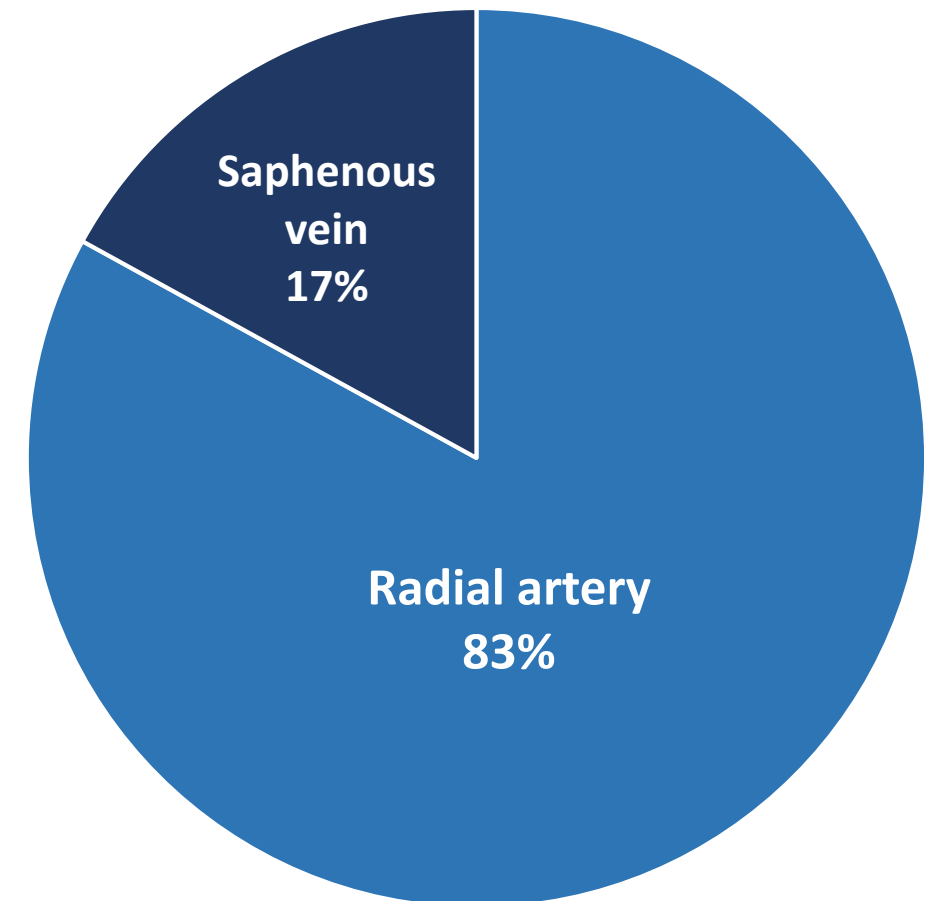


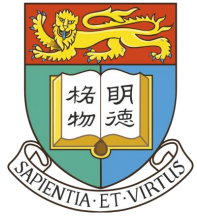
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## Results

- 23 patients identified between 2010 to 2018
- 3 patients lost to follow-up (FU), hence were excluded from analysis of survival and patency
- 18 male, 5 female
- Mean age at time of operation: 52 years old
- Median follow-up duration: 23 months
- Median overall survival: 23 months
- Median disease-free survival 21.5 months

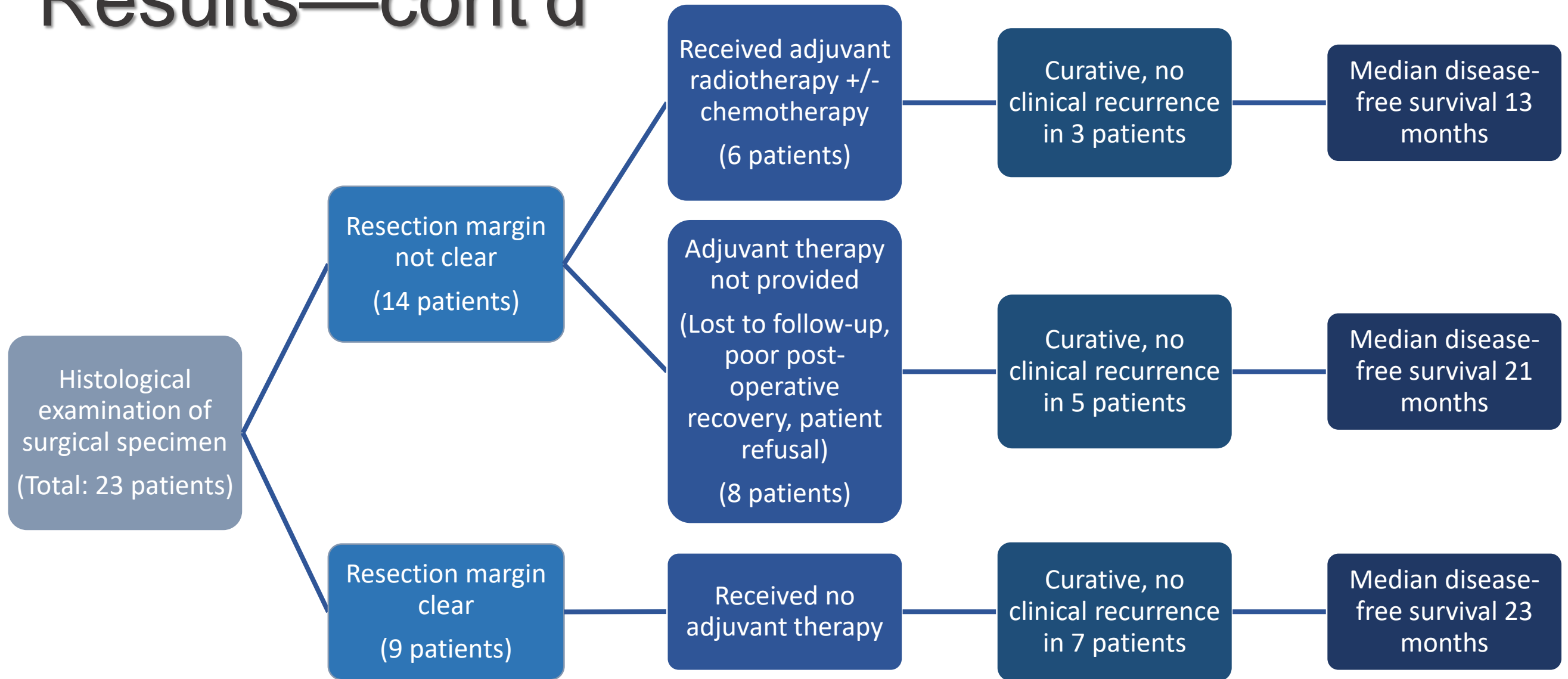
### Proportion of patients with each types of grafts





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## Results—cont'd

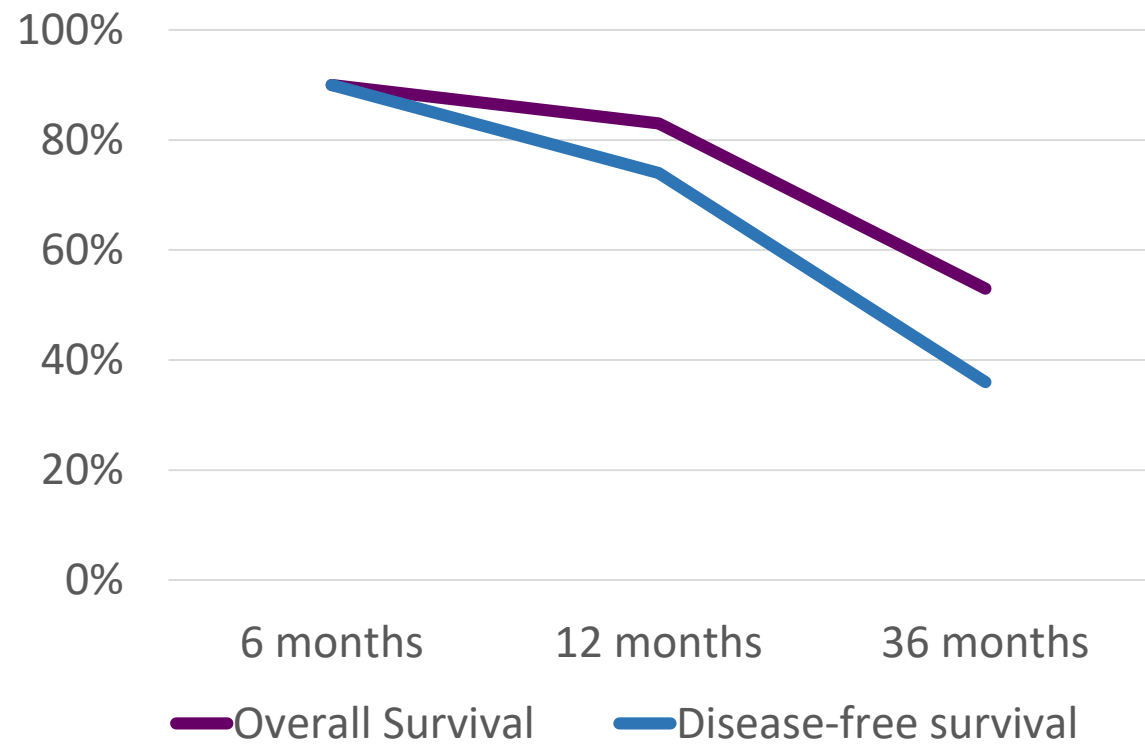




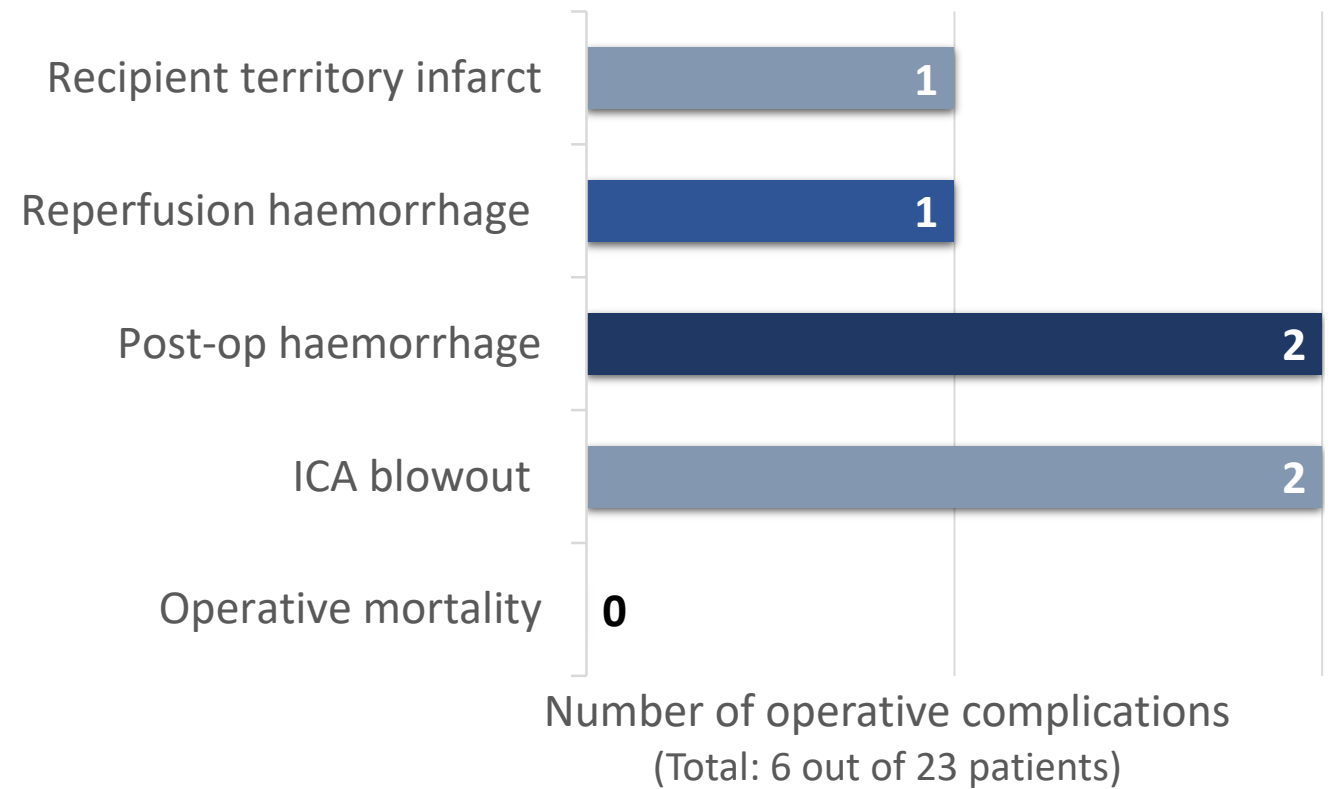
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## Results—cont'd

### Overall Survival and Disease-Free Survival



### Number of complications

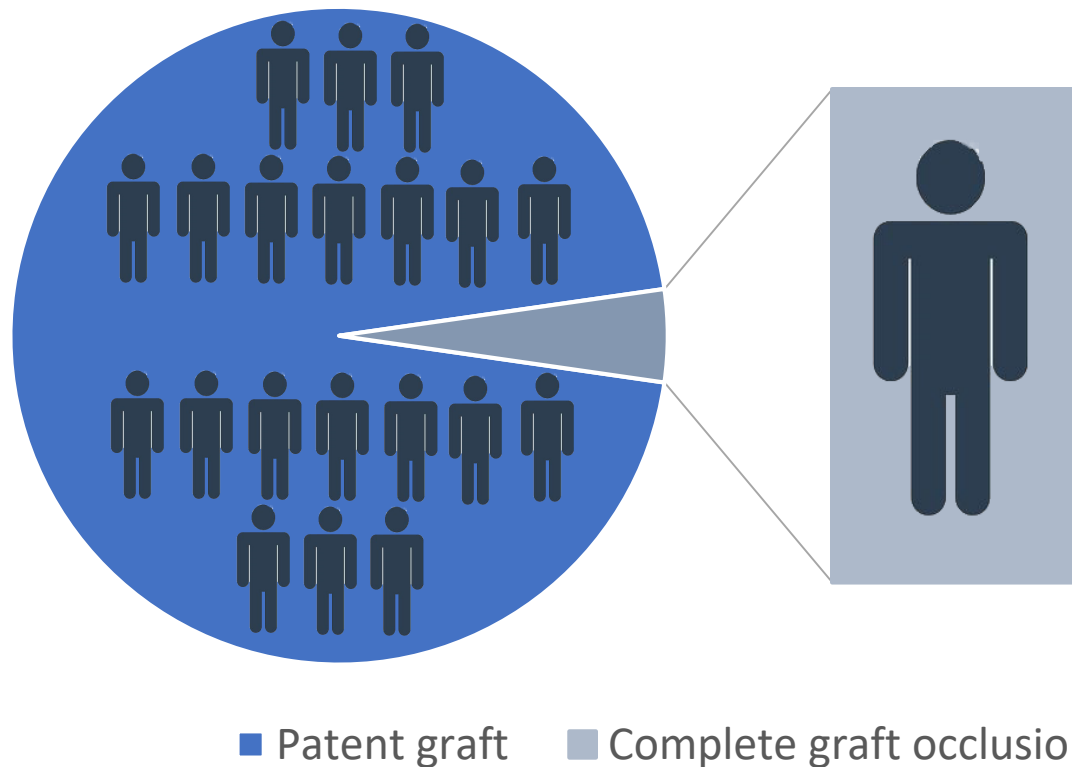




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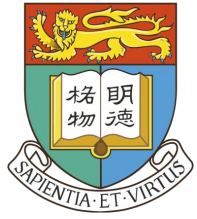
## Results—cont'd

### Graft Patency at the latest follow-up



- 1 patient developed total graft occlusion at post-op day 38
  - Angioplasty and stenting was performed
  - Patient died of chest infection 5 months later
- Overall patency rate 95% at last FU





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# Discussion

- ICA and cavernous sinus involvement had been considered contraindications to nasopharyngectomy, palliative chemotherapy and radiotherapy were the only options. [2]
- This group of patients who were previously classified as inoperable, can now be offered curative craniofacial resection with ECIC bypass in those with good premorbid status.
- Re-irradiation alone gives a low 5-year survival in recurrences ranging between 8% and 36%. [3]
- Our Head and Neck colleagues had previously reported a 5-year survival rate of 52% following this 2-staged procedure, superior to re-irradiation. [4]
- Operative complications and patency rates are comparable to ECIC bypass performed for other indications.

2. Salom, M.C., et al., *Salvage surgery in the treatment of local recurrences of nasopharyngeal carcinomas*. Acta Otorrinolaringol Esp, 2018. **69**(6): p. 339-344.

3. Fee, W.E., Jr., et al., *Nasopharyngectomy for recurrent nasopharyngeal cancer: a 2- to 17-year follow-up*. Arch Otolaryngol Head Neck Surg, 2002. **128**(3): p. 280-4.

4. Chan, J.Y., et al., *Multivariate analysis of prognostic factors for salvage nasopharyngectomy via the maxillary swing approach*. Head Neck, 2014. **36**(7): p. 1013-7.



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# Summary

- 2- Staged ECIC bypass and craniofacial approach offers new hope to patients with locally advanced NPC with ICA involvement, who were previously considered inoperable.
- Curative resection +/- adjuvant therapy was achieved in 67% of patients with no clinical recurrence
- Survival is largely limited by comorbidities, instead of graft failure
- Our centre has demonstrated good graft patency of 95% at last follow-up