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ORAL

O-1 | "Fast-Trach"—The way to reduce length of stay?

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Aim: At GSTFT in 2017, a wide variation of case selection for tracheostomy insertion and diversity of weaning to decannulation procedure was evident for patients both with and without flap reconstruction following ablative head and neck cancer surgery. A "Fast-Trach" protocol was implemented with the aim to standardise care and decrease time to decannulation.

Fenestrated tracheostomies were inserted in theatre at the time of the initial major resection. Tracheostomy cases were defined as either

1. "cover"(temporary placement to provide protection from potential surgical complications in the immediate post-operative period and facilitate safe and rapid return to theatre)

or

2. "essential" (placed as part of a planned surgical procedure with anticipation of prolonged patient requirement ie >10 days).

"Cover" tracheostomies were permitted cuff down trials from post-operative day 1 onwards, with the intention of a "quick wean"to decannulation from post-operative days 3-5, following nasendoscopy assessment to ensure adequate airway patency.

Method: Retrospective analysis was performed on routinely kept data concerning time to decannulation and length of inpatient stay. Patients treated over a one year period pre-and post-implementation of the "Fast-Trach" protocol were analysed.

All major head and neck surgeries were considered, with exclusion criteria being

- tracheostomy insertion/surgery conducted for anon-cancer reason,
- no indication for tracheostomy (ie procedures without extension into the airway eg standard neck dissection, thyroidectomy, parotidectomy, orbital exenteration),

and

- laryngectomy.

Cases from pre-protocol implementation wereretrospectively labelled "cover" or "essential" according to the specifiedcriteria and using TNM staging and operative site information.

Results: In 2014, there were 86 eligible cases (57 with flap reconstruction, 29 without) and 63 (49 with a flap and 14 without) in 2018.

The proportion of patients having a tracheostomy when no flap reconstruction was being performed reduced from 24% to 21%, whilst in those with a flap reconstruction placement increased from 51% to 92%.

For patients with a flap reconstruction requiring a "cover" tracheostomy, time to decannulation reduced significantly from mean 14 to 9.5 days (P = .02) and length of inpatient stay was reduced from 24 days to 19 days (P = .1) following implementation of the "Fast-Trach" protocol. Numbers decannulated by post-operative day 5 were 0/29 in 2014 and 11/45 in 2018.

Length of time to decannulation was also reduced in those with a flap who required an "essential" tracheostomy (from 15 to 10 days), though length of stay was unchanged in this group (21 days for both years).

Conclusion: Implementation of a standardised protocol to manage tracheostomy case selection and weaning to decannulation may have helped contribute to significantly reduce total time of cannulation and was associated with reduced total length of inpatient stay in the target "cover" tracheostomy population. Short duration of tracheostomy placement may help facilitate patient tolerance of such a procedure. Further study will help to evaluate the risks vs benefits of short term tracheostomy placement in this patient group.[1-4]

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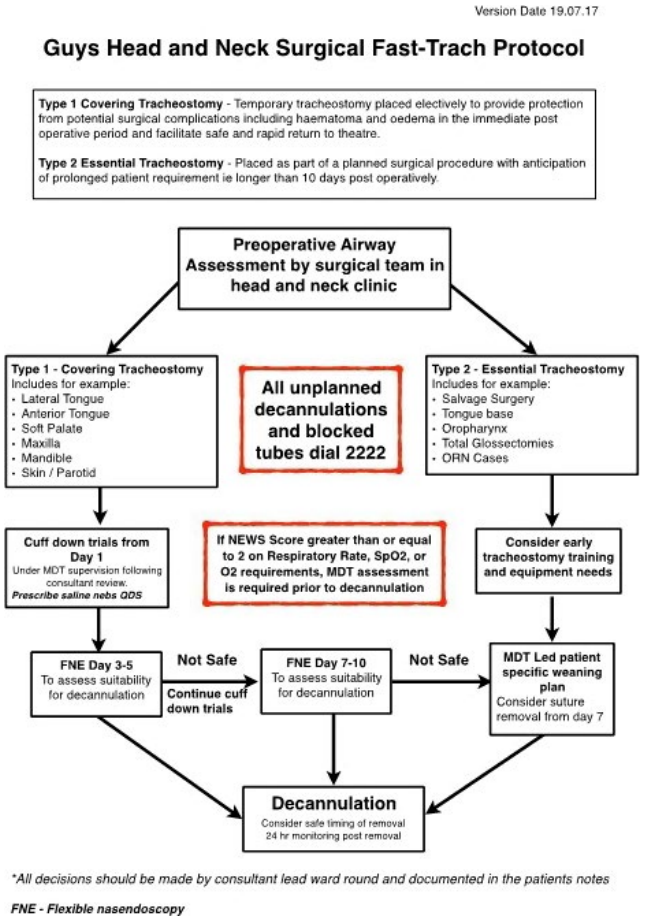

O-2 | A service evaluation looking at gastrostomy retention rates during surgical and/or chemo-radiotherapy treatment, in newly diagnosed head and neck (H&N) cancer patients, from a single centre between April 2016-April 2017

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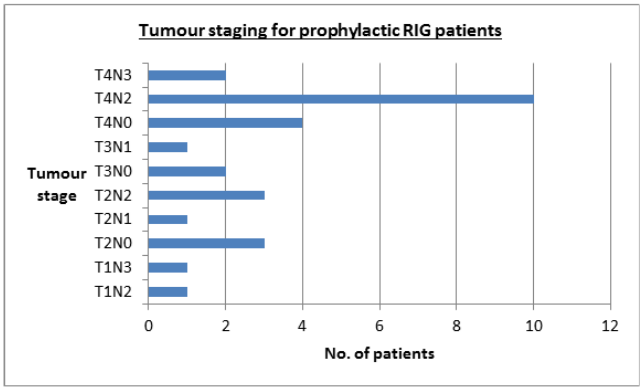
Aim: This service evaluation is a retrospective study, designed due to a lack of data regarding gastrostomy retention times of H&N cancer patients seen by dietitians at Imperial College Healthcare Trust (ICHT). The primary aim was to look at radiologically inserted gastrostomy (RIG) retention rates in H&N cancer patients at ICHT who were newly diagnosed between April 2016-April 2017. Further objectives looked at in this cohort of patients were (1) to determine the number of patients with a gastrostomy in situ and how many of these were prophylactic (2) to determine the average length of time between patients being referred for a gastrostomy and actual date of insertion and (3) to determine the number of patients who had feeding via their gastrostomy straight after insertion and after their treatment had finished. The data gained from this study was then to be compared with other centres and guidelines.

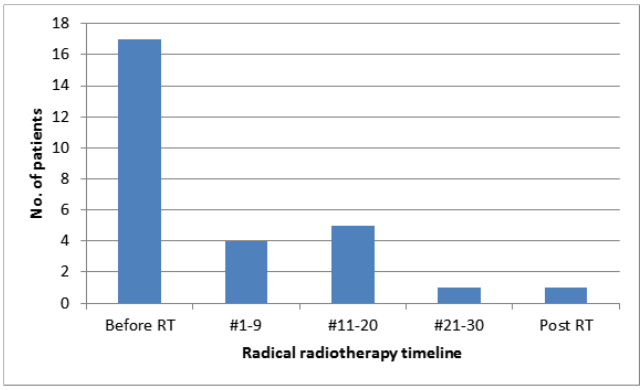
Method: Data was pulled from The Somerset Cancer Register for all new H&N cancer diagnoses between April 2016 and April 2017. A total of 199 patients were identified for ICHT and data collection from these patients was gathered retrospectively from the electronic database of patient records. Information was gathered on how many had a gastrostomy tube in situ. They were then split into different groups: "surgical," "radical radiotherapy" and "patients not included." Seventeen patients underwent both surgery and radiotherapy so were included as separate entities in both groups. Any patient that had a gastrostomy tube was added into the "gastrostomy group" as well.

Results: Twenty-one percent (n = 41) of the newly diagnosed H&N cancer patients at ICHT had a gastrostomy in situ at some point during their treatment. 97.5% (n = 39) of the gastrostomy tubes were RIGs. 14% (n = 28 patients) of the newly diagnosed H&N cancer patients had a prophylactic RIG inserted. The average length of time between a prophylactic gastrostomy being requested and inserted was 25 days. Twenty-five percent of patients were fed through their RIG straight away. Ninety-three percent of patients were using their RIG at the end of their treatment. The average number of weeks for the RIGs to be in situ was 24 weeks. In the radical radiotherapy cohort of patients, 28 patients had a prophylactic RIG and 61% (n = 17) of these were inserted before radiotherapy was started. Fifty-seven percent of the prophylactic RIG patients had T4 tumours, these were predominantly base of tongue and tongue.

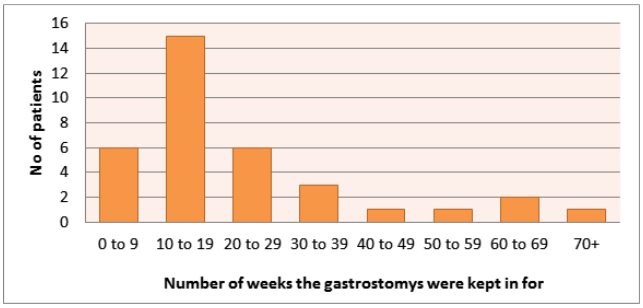
Conclusion: Gastrostomy retention rates at ICHT appear to be in line with international guidelines. Many of the prophylactic RIGs were in use by the completion of radiotherapy indicating the correct group of patients are chosen for prophylactic insertion. A quarter of patients required feeding via their prophylactic RIG straight away therefore earlier insertion would help to nutritionally optimise patients for radiotherapy. The type of gastrostomy inserted is dependent on local policy with no nationally agreed selection criteria for placement in H&N patients. Comparison between studies is difficult due to study design limitations and the inability to classify data into groups by similar treatment modality, type of gastrostomy and timing of tube placement. ICHT is part of The Vanguard partnership with Royal Marsden and Partners and thus, it would be beneficial to streamline practice and provide equitable care, both locally and also nationally; so all patients are following the same pathway.



A chart to show the tumour staging for the prophylactic RIG patients.



A bar chart demonstrating prophylactic gastrostomy insertion in relation to radical radiotherapy treatment.



A bar chart to demonstrate gastrostomy retention rates in this group of patients.

O-3 | A tracheostomy weaning pathway for head and neck surgery patients informed by an expanded retrospective case series analysis

Mirjana Rasovic

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Aim: For head and neck cancer patients, tracheostomies are inserted as part of planned major surgery.

In 2017, my initial case series analysis found that local Head and Neck speech and language therapist (SLT) involvement in tracheostomy weaning had been inconsistent, with particular variation in both timing of and reason for referral. Yet, it is known that a structured multidisciplinary team (MDT) approach reduces time to decannulation (NCEPOD 2014; Garrubba, Turner and Grieveson, 2009), with SLTs being one of the key MDT members.

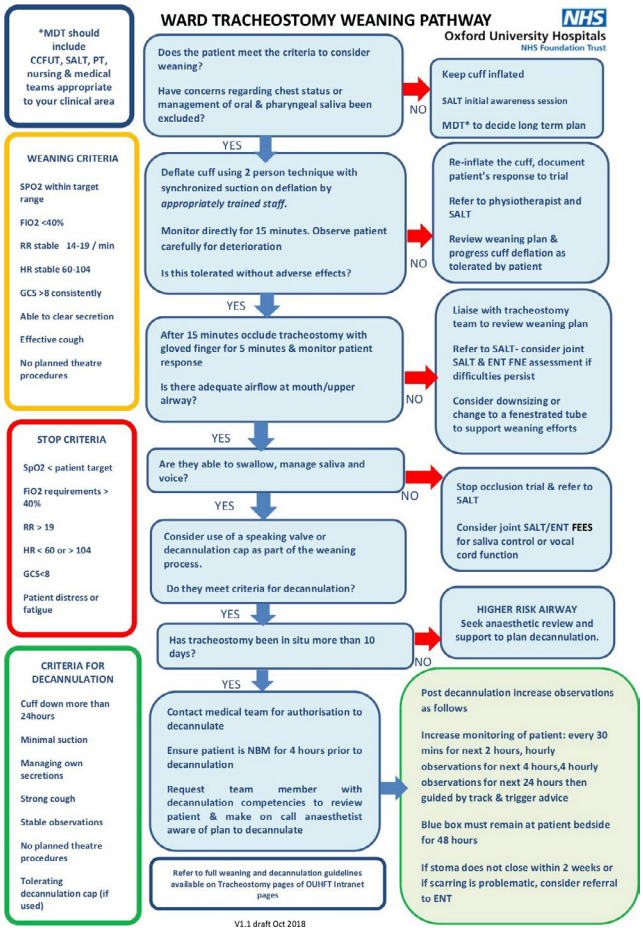
I developed an amended tracheostomy pathway, encouraging MDT working and providing an education tool for MDT members. Initial implementation results were encouraging.

An extended case series analysis has now been completed on a larger and more varied cohort of patients with the aim of validating the pathway.

Method: There are 40 cases following the weaning pathway (200% increase on the initial cohort), including ENT, plastics and maxillofacial are analysed. The cohort includes cases ranging in TNM staging (T1-T4). Key pathway milestones are reviewed and compared with the initial cohort. These include time to cuff deflation, upper airway assessment, voicing, oral trials and overall time to decannulation.

Results: In comparison with the initial cohort, SLT intervention is, on average, earlier and supplemented with post-operative communication support. There is a reduction in variation in timing of referral and clearer understanding for all parties on the reason for referral. There is an overall reduction in time to decannulation.

Conclusion: The implementation of a local head and neck tracheostomy weaning pathway has been beneficial in improving consistency of practice; SLT referrals are also more timely. Ultimately, care is more individualised, leading to earlier and safer decannulation. This has led to reviews of tracheostomy weaning at trust level.



O-4 | Analgesia for transoral robotic surgery: Our experience of developing a TORS-specific analgesic protocol

Laura Gradwell-Nelson[1]; Laura Jones[1]; Hannah Fox[1]; James O'Hara[1]; Vinidh Paleri[2]; Ahmed Chishti[1]; Laura Warner[1]

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Aim: In the last decade transoral robotic surgery has revolutionised treatment for oropharyngeal squamous cell carcinoma by offering a minimally invasive surgical approach with the potential to de-intensify oncological therapy, thereby minimising long-term swallowing morbidity. Although a minimally invasive surgical technique, TORS procedures can cause significant post-operative pain. If this is poorly controlled patients can experience delayed swallowing rehabilitation, difficulty in managing secretions and prolonged hospital admission.

The aim of this study is to describe the evolution of a TORS-specific analgesic regime and to report functional outcomes after implementation.

Method: An initial questionnaire survey was performed of patients undergoing TORS with standard post-op pain relief with paracetamol and a combination of weak and strong opioids. One hundred percent of patients reported uncontrolled pain in the post-operative period, aggravated by swallowing. A specialised TORS pain protocol was designed and implemented, incorporating dexamethasone, gabapentin, NSAIDs and opiate analgesics, including patient controlled analgesia (PCA) (Figure 1). Outcome data was then prospectively collected for 28 patients undergoing TORS, including; average daily pain scores at rest and when swallowing, time until swallowing rehabilitation, length of stay and details of any adverse effects of the analgesic regime. Follow up interviews at 2 weeks post op were conducted to assess pain levels and the effect on quality of life after discharge.

Results: Seventy-one percent of our cohort were treated for HPV-related disease. One patient underwent salvage TORS for recurrence after chemoradiotherapy. 17 patients underwent lateral oropharyngectomy for tonsil cancer, nine underwent tongue base resection and two had diagnostic mucosectomy.

The majority of patients reported mild pain (0-3 on analogue scale) on days 1-3. Figure 2 demonstrates average daily pain scores. Three patients consistently reported pain above 5/10 and length of stay was prolonged for these patients. This includes one patient who underwent salvage TORS, who was the only patient who did not achieve full swallowing rehabilitation.

Swallowing subjectively aggravated pain, with higher pain scores on swallowing in 45%. Twenty-four patients (86%) re-started oral fluids by day 2 and 22 patients (78%) successfully re-initiated oral diet by day 3. Swallowing rehabilitation was intentionally delayed for clinical reasons in three patients.

Our protocol was well tolerated; three patients reported feeling drowsy, with no serious side-effects.

Conclusion: The data presented demonstrate that our TORS specific analgesic protocol delivers excellent levels of pain control after transoral robotic oropharyngeal surgery. The regime was well tolerated, with minimal adverse effects.

The aim of the presented protocol is to minimize strong opioid and PCA use, whilst ensuring our patients' pain is controlled leaving them able to rehabilitate without delay. These strategies enhance the patient experience after surgery and improve recovery times and functional outcomes after TORS.

FIGURE 2

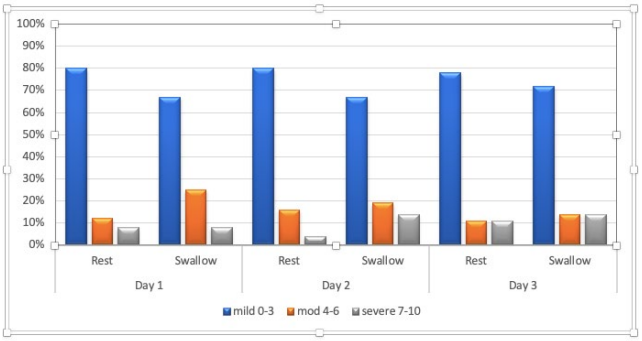

Table 1: Average daily pain scores Day 1-3, at rest and when swallowing. Percentage of patients with scores 0-3 (mild pain), 4-6 (moderate pain), 7-10 (severe pain).

POST TORS ANALGESIC PROTOCOL

Prescribe all patients (unless clinically contra-indicated):

- Paracetamol 1g QDS via NGT
  - adjust dose if <50Kg, or liver impairment. Consider IV if pain poorly controlled
- Dexamethasone 6.6mg BD for 48 hours
- Ibuprofen liquid 400mg TDS for 14 days (consider PPI)
- Gabapentin 300mg OD (day 1). Then 200mg TDS for 7 days
  - Caution with elderly. Review pre discharge
- Patient controlled analgesia (PCA) for first 24-48 hours. Review by acute pain service
- Oramorph 5-10mg once PCA discontinued
- Consider laxatives

O-5 | De-ESCALaTE: Comparison of cetuximab vs cisplatin in patients with HPV-positive, low risk oropharyngeal cancer, receiving radical radiotherapy

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Aim: De-ESCALaTE is a pragmatic, multi-centre, open label randomised clinical trial addressing the need to establish less toxic therapy in low-risk HPV positive head and neck cancer.

The incidence of human papillomavirus-positive oropharyngeal cancer is rapidly rising. It is a distinct disease entity, affecting younger patients, with much better outcomes. Standard treatment (cisplatin + radiotherapy) causes significant toxicity, which these young patients have to endure for many years. Cetuximab, an epidermal growth factor receptor inhibitor, has been proposed for treatment de-escalation to reduce toxicity of standard (cisplatin) treatment, but no randomised trials exist. The aim of the trial is to reduce toxicity whilst retaining tumour control.

Method: Patients with low-risk human papillomavirus-positive oropharyngeal cancer were randomised to receive radiotherapy (70G in 35F) and either cisplatin (3 doses of 100 mg/m^2) or cetuximab (400 mg/m^2 loading dose followed by weekly 250 mg/m^2). Outcomes were total number of severe (Grades 3-5) toxicity events, overall survival, recurrence and quality of life.

Results: We recruited 334 patients between 2012-2016 at 32 HNC treatment centres in the UK, Ireland and the Netherlands. Of patients randomised, 80% are male, mean age 57 years. The arms were well balanced for baseline patient characteristics.

There was a significant difference in the 2-year overall survival between cisplatin and cetuximab (97.5% vs 89.4% respectively, P = .001, HR = 4.99, 95% CI 1.70-14.67) and in 2-year recurrence rate (6.0% vs 16.1% respectively, P = .0007, HR = 3.39, 95% CI 1.61-7.19). There were no differences between the cisplatin and cetuximab arms in the reported mean number of overall (5.37 vs 5.45 events per patient respectively), acute or late severe (grade 3-5) toxicity events per patient or all grade toxicity (overall 29.15 vs 30.05 event per patients respectively). There were significantly more serious adverse events (162 vs 95) in the cisplatin arm compared to the cetuximab arm.

Conclusion: There was no benefit in terms of reduced toxicity and a significant detriment from the use of cetuximab instead of cisplatin in terms of tumour control. Cisplatin and radiotherapy remains the standard of care in this setting.

O-6 | Delayed extubation vs elective tracheostomy in elective free flap reconstruction in head and neck cancer—Our 10 year experience

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Aim: To evaluate a 10 year experience of perioperative airway management in head and neck cancer free flap reconstruction looking at the advantages and disadvantages of a delayed extubation approach vs a primary tracheostomy approach.

Method: We formed a 10 year free flap database of 469 free flap cases, which was collected by the head and neck team and cross referenced retrospectively with electronic and paper notes.

We collected a range of data including gender, age, co-morbidity, length of operation, post operative complications and length of stay.

Results: There are 333 of head and neck cancer free flap cases underwent delayed extubation, of which 16 underwent subsequent emergency tracheostomies. This excluded cases where a elective tracheostomy is indicated such as in bilateral neck dissections and a radiotherapy treated neck. Even with hindsight, it was difficult to predict the need of an elective tracheostomy in the cases that ended up needing an emergency tracheostomy. In light of this, in the summer of 2016, a new protocol was instituted where free flaps would get an elective tracheostomy which was supplemented by a specialised multidisciplinary tracheostomy decannulation protocol in the postoperative period. As a consequence the following 136 cases underwent elective tracheostomies and there were no airway emergencies and the mortality rate from airway management when from 1-2 per year to 0. We also noticed a reduction in our length of hospital stay and overall halving of free flap complications.

Conclusion: We advocate, in head and neck cancer free flaps, an elective tracheostomy is a safer option given that airway management can be unpredictable in the post operative period.

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O-7 | Dysphagia rehabilitation following transoral robotic surgery for oro-pharyngeal squamous cell carcinoma: A multi-centre survey within the United Kingdom

Sarah Stephen[1]; Vinidh Paleri[2]; Diane Goff[1]; James O'Hara[3]; Joanne Patterson[4]

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Aim: Transoral robotic surgery (TORS) is an emerging treatment for oro-pharyngeal squamous cell carcinoma (OPSCC). Excellent oncological and survival outcomes have been reported, with a minimally invasive technique avoiding the functional morbidity associated with open surgery and high dose primary (chemo)radiotherapy.[1] Encouraging swallow outcomes are demonstrated[2,3]with the majority of patients resuming full oral intake by six weeks4. However, the level of dysphagia and rehabilitation requirements in the early post-surgical stage are currently not reported.

There are 15 centres across the U.K. offering TORS, with more expected in the future. It is therefore essential to get a clear

understanding of optimal dysphagia management for this treatment group.

This study aimed to investigate access and timing of Speech and Language Therapy (SLT) intervention and dysphagia management from a multi-centre collaboration.

Method: A panel of multi-disciplinary clinicians with expertise in TORS initiated a multi-centre service evaluation. Survey questions were devised by two expert SLTs with TORS rehabilitation experience.

Lead SLTs from 15 TORS centres within the U.K. were invited to participate in the study. The survey was piloted by three centres and refined.

Each centre completed a patient audit on the previous five consecutive OPSCC TORS resections.

The survey included open and closed questions referring to patient demographics, pre and post-surgical SLT intervention and post-surgical swallow function. Findings were analysed using descriptive statistics.

Results: Three centres were excluded as were yet to complete five OPSCC TORS resections. Nine centres completed audit data, giving a total of 45 patients.

Eighty-eight percent of patients were seen for SLT assessment prior to surgery. Typically, initial assessment included baseline oro-motor assessment (73%), clinical swallow assessment (73%), advice on expected post-operative dysphagia (88%) and dysarthria (54%). Just over half (56%) of patients had pre-operative instrumental assessment, with the majority (n = 20/25) having videofluoroscopy assessments.

Almost all patients (93%) had a naso-gastric tube (NGT) placed at time of surgery with the majority requiring tube feeding between 1 and 3 days (n = 15).

All patients were seen by SLT for clinical assessment prior to commencing oral intake, typically on day one post-surgery (59%). More than half (55%) of patients showed clinical signs of aspiration. Sixty-six percent received dysphagia rehabilitation exercises, however three-quarters (75%) experienced a level of pain that significantly impacted on rehabilitation.

Conclusion: The survey identified differences in access to SLT services and dysphagia management. There are several potential reasons for this, including service provisions and referral pathways. Some centres were enrolled in a national clinical trial[5]increasing access to videofluoroscopy assessment, which otherwise may not have been adopted in to clinical practice.

TORS results in dysphagia with risks of aspiration on oral intake. Pain is a significant post-surgical issue. Optimising pain management will improve post-surgery rehabilitation.

The study highlighted the difficulties in multiple centre data collection. However, there are significant benefits in collating patient outcomes and service evaluations. Developing a consensus of rehabilitation needs will promote efficient dysphagia management and inform service development and resource requirements, in addition to strengthening professional networks. As a result, patients could be provided with more tailored expectations of post-surgical rehabilitation, including the use of patient information leaflets.

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O-8 | Functional outcomes following transoral robotic surgery for recurrent head and neck cancer (HNC)

Grainne Brady[1]; Sarah Stephen[2]; Justin Roe[1]; Vinidh Paleri[1]

[1]The Royal Marsden NHS Foundation Trust, UK; [2]The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle, UK

Aim: The standard of care for the management of recurrent HNC is open surgery, an intervention associated with high morbidity. Transoral robotic surgery (TORS) is now being considered as a minimally invasive option for selected tumours with encouraging oncological control. However, multidimensional swallowing outcomes have not been reported.

Method: We evaluated PSS Normalcy of diet (PSS-NOD) at 3 and 6 months post-surgery at two UK tertiary cancer centres. A subgroup treated in a single centre (London) underwent more detailed assessment using the MD Anderson Dysphagia Inventory (MDADI) and the Penetration-Aspiration Scale (PAS) (using videofluoroscopy or Fibreoptic Endoscopic Evaluation of Swallowing- FEES on thin liquids only).

Results: Between 2014 and 2018, 32 patients underwent TORS for recurrent HNC. PSS-NOD scores reduced from 65.3 (95% CI 56.6 to 74) at baseline (n = 32) to 44.68 (95% CI 33.7 to 55.7) at 3 months (n = 32) and 50.86 (95% CI 37.1 to 64.7) at 6 months (n = 23) post-surgery. A subgroup of 16 patients underwent further assessment; mean age was 61 (range 48-74), three females were included. Five patients required free flap reconstruction and 12 required tracheostomy. Mean time to decannulation was 9.58 days (range 4-27). Baseline gastrostomies in place for two patients at baseline, eight at 3 months (n = 16), and five at 6 months post-surgery (n = 14). Median MDADI global score decreased from 4 (range 1-5) at baseline (n = 15)

to 2 (range 1-5) at 3 and 6 months post-surgery. Median PAS scores increased from 1 (range 1-8) at baseline (n = 13), to 8 (range 1-8) at 3 and 6 months post-surgery.

Conclusion: The use of TORS for recurrent HNC may result in a decline in swallowing status in the early post-operative phase; however dependency on gastrostomy decreases, and diet scores appear to improve by six months post operatively. Baseline swallowing status appears to be a key factor influencing swallowing recovery. Dysphagia rehabilitation is required for this patient cohort. Further research is required.

O-9 | HPV associated B-cell infiltration in head and neck squamous cell carcinoma and survival outcomes: a systematic review

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Aim:

1. To synthesise current evidence pertaining to the association between human papillomavirus (HPV) positive head and neck squamous cell carcinomas (HNSCC) and the infiltration of B-cells into the tumour microenvironment.
2. To assess the relationship between HPV+ HNSCC, B-cell infiltration and survival outcomes in HNSCC.
3. To discuss the potential for immunotherapies targeting B-cell infiltration in HPV+ HNSCC.

Method: A comprehensive search of Medline, Embase, Scopus and Cochrane Library databases was performed in January 2019. No limits were placed on date or language. All titles and abstracts were screened by two independent authors to determine relevance, and in cases of disagreement a third author was consulted. For all included papers we hand-searched the references and "cited-by" papers to identify further relevant work. Inclusion criteria were: (a) studies which published original data in a peer-reviewed journal; and (b) articles assessing the relationship between HPV status and B-cell infiltration in HNSCC. Data extraction was performed by two independent authors using a pre-defined database.

Results: Nine papers were included. HPV+ status was associated with a significantly greater B-cell immune response compared to HPV− HNSCC (Table 1). However, two studies found no increased B-cell infiltration in HPV+ tumours, but their sample size was limited. Results were consistent across anatomical sites, except in one study were only oropharyngeal tumours had increased B-cell infiltration[7]. Increased B-cell infiltration was the biggest difference in the immune microenvironment when comparing HPV+ to HPV− HNSCC. Furthermore, HPV integration into the host genome was associated with decreased B-cell infiltration compared to integration negative tumours. Five studies analysed the impact of high vs low B-cell infiltration on prognosis. Increasing infiltration was generally associated with improved overall survival and recurrence free survival. In other studies, no correlation was demonstrated[6,7], but survival analyses were likely underpowered. None of the studies analysed the effect of B-cell infiltration on responsiveness to chemoradiotherapy or as a predictor of metastases.

Conclusion: There is increasing evidence supporting the importance of the B-cell immune response associated with HPV+ HNSCC, and that the degree of infiltration may correlate with outcome. However, a subset of HPV+ HNSCC presented poorer outcomes, and this has been correlated with HPV integration into the host genome and a B-cell depleted microenvironment. Studies are needed to correlate B-cell infiltration with long-term outcomes and/or responsiveness to therapeutic modalities to determine if B-cell infiltration could serve as a biomarker to guide treatment decisions. Further investigation into the mechanistic role of the different B-cell subpopulations within the tumour microenvironment and their interaction with other immune cells will help inform the design of potential immunotherapies targeting B-cell pathways in HPV+ HNSCC.

Author	Year	B-cell analysis method	High vs Low B-cell Expression	Survival Analysis	Survival Outcome
Chen et al[1]	2018	Gene Expression analysis using CIBERSORT software	Ratio of B-cell infiltrate to total immune infiltrate	Overall survival with multivariate cox regression analysis	HPV+ high B-cell expression improves overall survival (HR 0.263; CI 0.084 – 0.827; p-value 0.022)
Wood et al[2]	2016	Gene expression (RNA seq) and CD20 Immunohistochemistry with Functional analysis of Individual RNA-seq or Microarray Expression	Pathological quantification. High = >80 involvement of tumour/stroma, low = <20% involvement	Disease free survival with Kaplan-Meier curve and log rank analysis	HPV+ high B-cell expression improves disease free survival ($p < 0.001$)
Cao et al[3]	2018	DNA microarray immunohistochemistry	Average of normalised expression value	Five-year overall survival and disease-free survival with Kaplan-Meier curve and log rank analysis	HPV+ High B-cell expression had improved overall and recurrence free survival (OS, p = 0.006; RFS, p = 0.0003)
Koneva et al[4]	2018	Gene expression analysis	Average value degree of infiltration	Five-year overall survival with Kaplan-Meier curve, log rank analysis and multivariate cox regression analysis	HPV integration negative tumours had improved five-year overall survival ($p = 0.016$)
Franzen et al[5]	2018	Quantitative data obtained from The Cancer Genome Atlas	RNA-seq based quantification	-	-
Russell et al[6]	2013	qRT-PCR and immunohistochemistry of CD20	Mean used as cut-off	-	-
Schneider et al[7]	2018	Immunohistochemistry of CD20	Proportion of stained area as ratio of whole tumour	No sub-analysis of B-cell infiltration on survival.	-
Ritta et al[8]	2013	Immunohistochemistry of CD20	Mean density (%) of B-cell infiltration compared for HPV+ and HPV-	-	-
Wansom et al[9]	2010	B-cell flow cytometry	Mean B-cell percentage as function of overall lymphocyte infiltration for HPV+ and HPV-	-	-

Table 1: Descriptive methodology of included studies relating to analysis of B-cell infiltration and analysis of survival outcomes if included.

O-10 | Listening to the laryngectomy patient to improve care

Jane Dunton; Susannah Heppenstall

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Aim: Following total laryngectomy, patients have specific care needs [1]. Most patients are self-caring, however if they require hospital admission or experience a deterioration in function they may require support. GSTT is a specialist centre for Head and Neck Cancer with a team of specialist SLTs who act as keyworkers for laryngectomy patients. Our patients told us that staff caring for them in non-specialist settings often lacked basic knowledge and understanding of the changes to anatomy and function that laryngectomy involves. Queries from staff indicated that some aspects of basic care were being neglected at times when patients are particularly vulnerable.

Our study day was designed in response to these concerns, aiming to improve delegates' knowledge and understanding of anatomy, function and care needs following laryngectomy, and to improve their confidence in supporting patients. We evaluated the day to determine whether aims were met and to inform delivery of future training.

Method: A multidisciplinary study day was run by the SLT department, with presentations from surgical, nursing and physiotherapy colleagues. Content and evaluation forms were specifically designed with patient input, and patients and carers attended the day to give talks and answer questions.

The target audience was nurses and allied health professionals who were not specialists in head and neck cancer management, but who may care for laryngectomy patients, eg in non-specialist hospitals, nursing homes, or in patients' own homes.

The evaluation form was completed anonymously by all delegates, rating their confidence and knowledge in a number of areas at the beginning and end of the day, on a scale of 1-10. Responses pre-and post-training were compared with the Wilcoxon Signed-Rank test. Delegates were also asked to indicate their profession, grade, and number of years working in their current specialism. Open questions were included to capture qualitative responses and suggestions for improvement.

Results: 18 delegates attended from a range of background and levels of experience (Figure 1). There was a significant improvement in all questionnaire measures following the training ($P < .01$, Figure 2). When asked to rate how well the day had met their expectations from 1 (not at all met) to 10 (exceeded), 100% rated at 7 or above.

Delegates were asked to explain how their practice would be informed by their learning. Six delegates commented that they would share their learning with colleagues; two highlighted their increased understanding of the importance of involving patients in their own care.

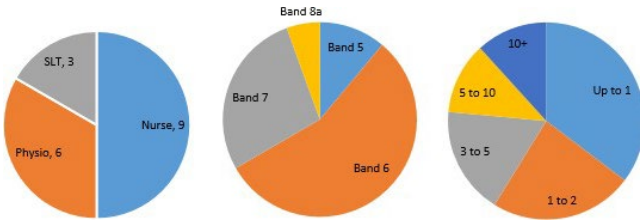
Twelve delegates identified patient involvement in the study day as a feature they found most helpful. Others commented on the MDT approach and variety of presentations included. Suggestions for improvement included increasing the practical sessions and extending the duration of the day, and running the day again so colleagues could attend.

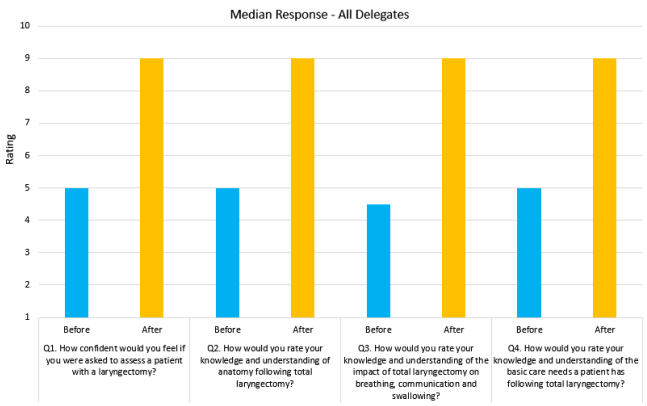
Conclusion: In partnership with patients and carers, we designed and delivered a study day on Basic Laryngectomy Care in response to patient feedback and queries from non-specialist centres. Delegates were asked to evaluate the day, rating their baseline confidence and knowledge from 1-10 at the beginning of the day and then re-rating their confidence and knowledge in the same areas at the end of the day. Median responses increased from 4.5-5 at the start of the day to nine for all areas following the

study day and this was statistically significant. Feedback was extremely positive, and delegates felt that they would be able to put their learning into practice. There were no suggested changes to the format or content of the day, and delegates found the patient involvement particularly beneficial.

We plan to deliver the study day annually, with ongoing monitoring of feedback to inform further development of the programme.

Reference: 1. Ward EC, van As-Brooks CJ. *Head and Neck Cancer: Treatment, Rehabilitation, and Outcomes*. San Diego, CA: Plural Publishing; 2007.





O-11 | National audit of head and neck cancer post-treatment surveillance: An INTEGRATE-BAHNO collaboration

George Garas[1]; John Hardman[2]; Theofano Tikka[3]

[1]*On behalf of INTEGRATE (in alphabetical order: Matthew Ellis, George Garas, John Hardman, Maha Khan, Hisham Mehanna, Matthew E Smith, Theofano Tikka, Kishan Ubayasiri, Richard Williams), UK;* [2]*The Royal Marsden NHS Foundation Trust;* [3]*Queen Elizabeth University Hospital, Glasgow, UK*

Aim: Follow-up of patients after treatment for head and neck cancer is crucial in the management of morbidity and detection of disease recurrence. We assessed practice across the UK, evaluating compliance with the BAHNO recommendations, and exploring indicators for recurrence and the role of allied health professionals.

Method: Multi-centre, prospective and retrospective audit involving 89 hospitals across the UK, delivered for BAHNO by INTEGRATE, the National ENT Trainee Research Network.

Results: Complete data were collected from n = 5,123 patients. Fifty-seven percent of recurrences occurred at 2 years, 32% between 2 and 5 years, and 11% post-5 years. Expedited follow-up correlated significantly with the presence of recurrence ($P < .05$). The pick-up rate (for residual/recurrent disease) was 35% for expedited appointments compared to 5.2% for planned follow-ups ($P < .001$). Of the expedited appointments, 63% were initiated by patients (vs 37% by clinicians). The commonest new symptom was dysphagia (33%) but the strongest predictor of recurrence was dyspnoea (PPV = 16.2%) followed by pain (neck = 10.4%, mouth/throat = 9.2%). There was lack of consensus around the choice of imaging modalities for investigating suspected recurrence. Thirty percent of patients were seen in a dedicated MDT clinic with input from other health professionals available on the day in 23% of consultations. There was evidence to support the delivery of patient education regarding recurrence, smoking and alcohol advice in only 20.4%, 6.2%, and 5.3% of cases, respectively.

Conclusion: These findings provide incentive to change current practice of clinician-led follow-up, making it more patient- driven and innovative, and involving risk-stratification and greater patient education.

Authorship: INTEGRATE (in alphabetical order: Matthew Ellis, George Garas, John Hardman, Maha Khan, Hisham Mehanna, Matthew E Smith, Theofano Tikka, Kishan Ubayasiri, Richard Williams).

Presenters: John Hardman and Theofano Tikka.

O-12 | Oral care protocol to reduce post oral surgical complications for head and neck cancer

Rachel Sylla; Gabriella Massa

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Aim: Mouth Care Matters (MCM) is a Health Education England initiative that aims to improve clinical outcomes by empowering the healthcare team with the knowledge of the importance and implications of good oral hygiene, as well as skills to provide a high standard of oral care.[1]

Oral hygiene plays an important role in the recovery and reduction in post-surgical complications of Head and Neck cancer (H&N) patients, particularly those who have undergone surgery to the oral cavity.[2,3.5] However, oral care for this patient population can be complex and is often overlooked[1].

Our project aim was to establish a baseline in current oral hygiene practice on the H&N ward at University College London Hospital (UCLH). These findings would be used to identify areas of improvement and support the Multidisciplinary team (MDT) to improve post-surgical outcomes to deliver gold standard care as identified by the MCM initiative.

Method: Two questionnaires and a documentation audit were carried out in February 2018. The questionnaires were aimed at patients and nursing staff on the H&N ward at UCLH. Of the returned questionnaires, patients returned 15 and staff returned 10. An audit was completed on 12 sets of patient notes. All results were collated on a database.

Results: Of the patient notes reviewed, 75% did not have a record of mouth care. Sixty percent of the patients reported that they were asked by staff about their mouth status. Sixty percent of patients reported new problems pertaining to oral care and 70% reported that they were not asked if they had the appropriate oral care equipment. Of the nursing response, 70% felt comfortable providing oral care and 90% were interested in training for mouth care.

Conclusion: There is a demonstrable need for training and development in oral hygiene on the H&N ward at UCLH. A defined protocol has been developed by the H&N MDM as a result of the survey findings and forthcoming roll-out of the MCM initiative at UCLH in early 2019. This protocol will serve as an addendum to the MCM competency document. The aim is to improve the standard of care and reduce post-surgical complications by empowering both staff and patients to implement oral hygiene post surgery to the oral cavity. Strategy for successful roll-out will be enabled by championing the MCM initiative by involvement in MCM meetings and events, staff training, and exemplar ward focus on oral health. The surveys will be repeated to assess progress and efficacy of the protocol one year after the MCM programme has been established at UCLH.

References: 1. Improving Oral Health of Older Persons Initiative. http://www.mouthcarematters.hee.nhs.uk/. 2018.
2. Mouth care guidance and support in cancer and palliative care. http://www.ukomic.co.uk/pdf/UK_OM_Guidelines.pdf. 2015.
3. Shigeishi H, et al. Risk factors for postoperative complications following oral surgery. *J Appl Oral Sci*. 2015; 23(4):419-423.
4. Sato J, et al. Oral health care reduces the risk of postoperative surgical site infection in inpatients with oral squamous cell carcinoma. *Support Care Cancer*. 2010;19(3):409-416.
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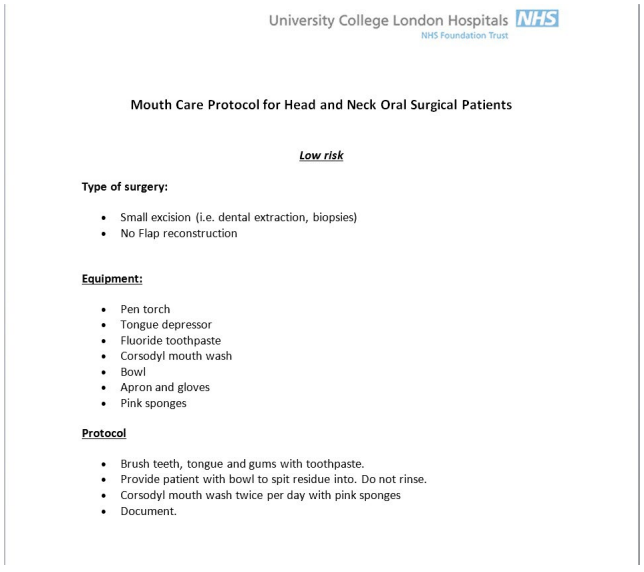


University College London Hospitals NHS
NHS Foundation Trust

Mouth Care Protocol for Head and Neck Oral Surgical Patients

Low risk

Type of surgery:

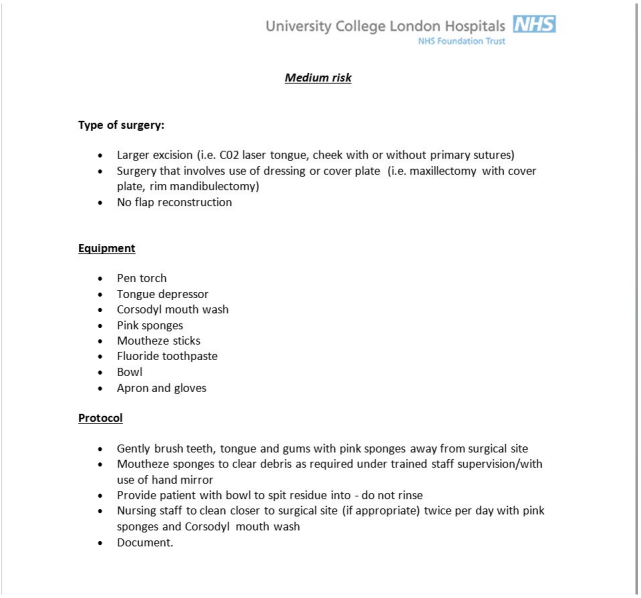
- Small excision (i.e. dental extraction, biopsies)
- No Flap reconstruction

Equipment:

- Pen torch
- Tongue depressor
- Fluoride toothpaste
- Corsodyl mouth wash
- Bowl
- Apron and gloves
- Pink sponges

Protocol

- Brush teeth, tongue and gums with toothpaste.
- Provide patient with bowl to spit residue into. Do not rinse.
- Corsodyl mouth wash twice per day with pink sponges
- Document.



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Medium risk

Type of surgery:

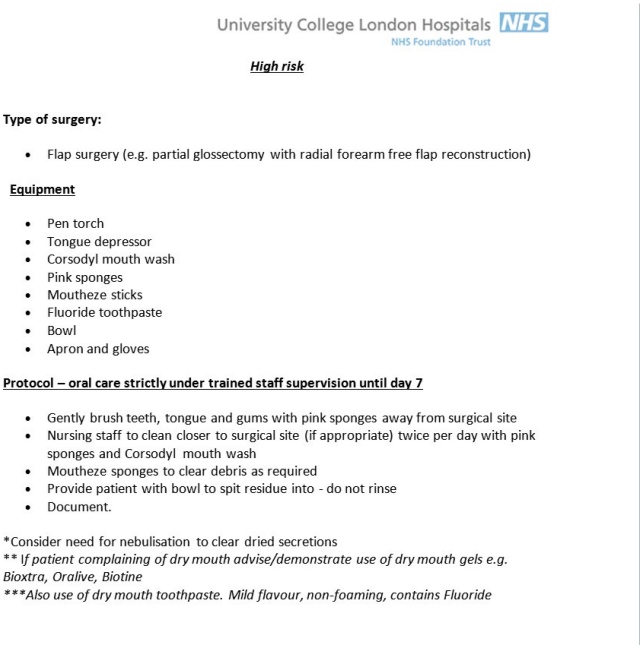
- Larger excision (i.e. C02 laser tongue, cheek with or without primary sutures)
- Surgery that involves use of dressing or cover plate (i.e. maxillectomy with cover plate, rim mandibulectomy)
- No flap reconstruction

Equipment

- Pen torch
- Tongue depressor
- Corsodyl mouth wash
- Pink sponges
- Moutheze sticks
- Fluoride toothpaste
- Bowl
- Apron and gloves

Protocol

- Gently brush teeth, tongue and gums with pink sponges away from surgical site
- Moutheze sponges to clear debris as required under trained staff supervision/with use of hand mirror
- Provide patient with bowl to spit residue into - do not rinse
- Nursing staff to clean closer to surgical site (if appropriate) twice per day with pink sponges and Corsodyl mouth wash
- Document.



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High risk

Type of surgery:

- Flap surgery (e.g. partial glossectomy with radial forearm free flap reconstruction)

Equipment

- Pen torch
- Tongue depressor
- Corsodyl mouth wash
- Pink sponges
- Moutheze sticks
- Fluoride toothpaste
- Bowl
- Apron and gloves

Protocol – oral care strictly under trained staff supervision until day 7

- Gently brush teeth, tongue and gums with pink sponges away from surgical site
- Nursing staff to clean closer to surgical site (if appropriate) twice per day with pink sponges and Corsodyl mouth wash
- Moutheze sponges to clear debris as required
- Provide patient with bowl to spit residue into - do not rinse
- Document.

*Consider need for nebulisation to clear dried secretions
** *If patient complaining of dry mouth advise/demonstrate use of dry mouth gels e.g. Bioxtra, Oralive, Biotine*
****Also use of dry mouth toothpaste. Mild flavour, non-foaming, contains Fluoride*

O-13 | Patterns and predictors of retropharyngeal lymph node involvement in oropharyngeal carcinoma treated with (chemo) radiotherapy

Zsuzsanna Iyizoba[1]; Louise Murray[2]; Moses Arunsingh[1]; Sriram Vaidyanathan[2]; Andrew Scarsbrook[1]; Robin Prestwich[1]

[1]*Leeds Teaching Hospitals NHS Trust, UK;* [2]*Leeds Teaching Hospitals Trust, UK*

Aim: Retropharyngeal (RP) lymph node (LN) irradiation increases toxicity due to proximity to parotid and pharyngeal constrictors. Prediction of RP LN involvement is necessary to prevent

radiotherapy treatment failures and potentially allow de-escalation of treatment by omission of this region in low risk patients. FDG PET-CT is one of the most sensitive imaging modalities for LN detection. This study aims to evaluate the frequency of RP involvement in patients with oropharyngeal carcinoma and a baseline PET-CT and MRI and/or contrast enhanced CT, relative to tumour subsite, T stage, size/number/location of involved LN, HPV and smoking status.

Method: This study is a single centre retrospective analysis of patients with oropharyngeal carcinoma treated with radiotherapy ± chemotherapy between 2010-June 2017. Inclusion criteria were: squamous cell carcinoma of oropharynx, baseline PET-CT, cross-sectional imaging with an MRI and/or contrast enhanced CT. Imaging reports were reviewed and any discrepancies between PET-CT and MRI/CT with regard to retropharyngeal LN status were reviewed by an experienced radiologist. Prevalence of retropharyngeal LN involvement was determined in relation to oropharyngeal subsite, T stage, levels of involved ipsilateral lymph nodes, contralateral lymph node involvement, size of largest LN, total number of involved lymph LN, HPV status, smoking status.

Results: There are 402 patients with oropharyngeal carcinoma and a baseline PET-CT were evaluated. Baseline patient and disease characteristics are summarised in Table 1. Median number of involved LN was 2 (range 0-20); median largest LN size was 2.5 cm (range 0-8.3). RP LN involvement was present in 43/402 (10.7%) of patients. RP LN involvement was unilateral-only in 35/43 (81%), bilateral in 5/43 (12%) and contralateral-only in 3 (7%). In 8/43 (19%) cases, involvement was predominantly above the level of the oropharynx. On multivariate analysis, involvement of contralateral LN was associated a higher rate of RP LN involvement (P = .001, odds ratio 2.3 (95% CI 1.12-6.95) and grade 3 (poorly differentiated) histology was associated with a lower rate (P = .013, odds ratio 0.27 (95% 0.01-0.77)); tumour subsite, T stage, largest LN size, total number of LN, any ipsilateral LN level I/II/III/IVa/Va/b involvement, HPV and smoking status did not predict risk of RP LN involvement.

Conclusion: The prevalence of retropharyngeal LN involvement was 10.7% with contralateral-only involvement rare, suggesting this region may be omitted from radiotherapy target volumes for lower risk patients. Contralateral lymph node involvement was associated with a higher risk of RP LN; however no clear group suitable for omission of ipsilateral RP LN irradiation could be identified.

Table 1: Patient and disease characteristics

	n	%
GENDER		
• Male	310	77.1
• Female	92	22.9
MEDIAN AGE	58 (range 24-84)	
SMOKING STATUS AT DIAGNOSIS		
• Non smoker	114	28.4
• Ex-smoker	137	34.1
• Smoker	133	33.1
• Unavailable	18	4.5
HPV STATUS (p16)		
• Positive	192	47.8
• Negative	34	8.5
• Unavailable	176	43.8
SUBSITE		
• Tonsil	241	60.0
• Base of Tongue	135	33.6
• Vallecula	9	2.2
• Post pharyngeal wall	5	1.2
• Soft palate	12	3.0
GRADE		
• 1 (well differentiated)	3	0.8
• 2 (moderately differentiated)	74	18.4
• 3 (poorly differentiated)	297	73.9
• Not graded	28	6.9
T STAGE (TNM7)		
• T1	85	21.1
• T2	168	41.8
• T3	76	18.9
• T4	73	18.2
N STAGE (TNM7)		
• N0	41	10.2
• N1	45	11.2
• N2a	30	7.5
• N2b	199	57.0
• N2c	74	18.4
N3	13	3.2
IPSILATERAL LYMPH NODE INVOLVEMENT		
• I	18	4.5
• II	346	86.1
• III	174	43.3
• IVa	55	13.7
• Va/b	26	6.5
CONTRALATERAL LYMPH NODE INVOLVEMENT	117	29.1

O-14 | PET-CT surveillance post (chemo)-radiotherapy in advanced head and neck squamous cell cancer—Beyond the PET-Neck protocol

Claire Paterson[1]; Suyun Zhou[2]; Robert Rulach[1]; Fraser Hendry[3]; Allan James[2]; David Stobo[3]; Mary Frances Dempsey[3]; Derek Grose[1]; Stefano Schipani[1]; Carolynn Lamb[2]; Mohammed Rizwanullah[2]; Christina Wilson[2]

[1]Beatson West of Scotland Cancer Centre/University of Glasgow, UK; [2]Beatson West of Scotland Cancer Centre, UK; [3]West of Scotland PET Centre, Gartnavel General Hospital, UK

Aim: The PET-NECK study.[1] demonstrated PET-CT scan 12 weeks post-radiotherapy for HNSCC was non-inferior to planned neck dissection (ND). A high negative predictive value means that patients who are disease-free are reliably identified and spared ND. However, poor positive predicative value means optimal management for equivocal responders remains unclear. The aim of this analysis was to evaluate outcomes using PET-CT surveillance with particular focus on those achieving an equivocal nodal response.

Method: All patients with node positive HNSCC treated with (chemo)-radiotherapy between January 2013 and September 2016 were identified. PET-CT responses were classified as complete (CR), incomplete (ICR) or equivocal (EQR). Patient demographics and outcomes were obtained from electronic records.

Results: There are 187 patients were identified. 82.3% had oropharyngeal cancer, 80.5% of those were HPV-positive. Nodal staging was as follows: N1 14.5%, N2 80.7%, N3 4.8%. 80.2% received chemoradiotherapy. Median follow-up was 30 months. Median time from end of radiotherapy to PET-CT scan was 90 days. 59.4% had CR, 23.0% EQR and 17.6% ICR nodal response. Only 10 NDs (23.2%) were carried out for the EQR group with 50% pathological involvement. Two-year recurrence rate was 12.8%, 11.8% and 37.5% for CR, EQR and ICR groups respectively. 2- year survival was 91.9%, 87.5% and 50.0% respectively. No statistically significant differences in recurrence and survival rates were found between CR and EQR at 1-year and 2-years.

Conclusion: This study showed that patients with equivocal response on 12 week PET-CT have similar clinical outcomes (survival, recurrence and locoregional control) as compared to the complete response group, despite the omission of ND. This confirms the safety of an active surveillance strategy rather than immediate ND in patients with an equivocal response on 12 week FDG PET-CT post (chemo)-radiotherapy.

Reference: 1. Mehanna H, et al. PET-CT Surveillance versus neck dissection in advanced head and neck cancer. https://doi.org/10.1056/nejmoa1514493

O-15 | Pre-clinical ultrasound assessment for head & neck cancer: A novel pilot study

Ahmad Hariri; Mandy Mak; Sarah Orr; Simon Morley; Jonathan Hughes; Francis Vaz

University College London Hospital NHS Foundation Trust, UK

Aim: The current two-week-wait head and neck cancer pathway advocates "one-stop" neck lump assessment clinics. We pilot a novel approach to neck lump referrals by way of a pre-clinic ultrasound scan. We present the outcomes, discuss strengths and limitations and propose this an alternative approach to the current pathway.

Method: New patients referred with a "neck lump" by the GP on a 2WW cancer pathway were included. Patients were allocated a pre-clinic ultrasound scan by clerical staff with a clinic follow up 5 days later. Demographics, presenting complaint, patient journey details and outcomes were collected. A positive impact was considered where the ultrasound resulted in an expedited endpoint; when a patient was discharged, listed for surgery, removed from the cancer pathway, referred to another specialty or for further investigations based upon the ultrasound. A negative impact was considered in cases where the ultrasound resulted in a delay in care or where the ultrasound was not felt to be indicated/did not alter management.

Results: There are 84 patients were booked for pre-clinic ultrasounds between May 2018 and January 2019. 16 did not attend and were excluded from further analysis. The remaining 68 patients underwent ultrasound assessment by a specialist consultant radiologist on average 8.81 days after referral (range: 2-21 days). Twenty patients (29.4%) underwent a biopsy at the same time. At first appointment, 33 patients were discharged back to the GP (48.5%), six listed for surgery (8.8%), 12 referred on for further management/investigations (17.6%) whilst 11 were followed up routinely (16.2%). Overall, a positive impact was achieved in 91.2% of patients.

Ultrasound made no difference to the management of three patients and in one patient, a second ultrasound was requested inadvertently at the first clinic appointment. Two patients were reviewed in clinic prior to the biopsy results being available resulting in an additional appointment being booked.

Conclusion: Pre-clinic ultrasound scanning may provide an alternative to or complement the current "one-stop" neck lump clinic. Our results demonstrate a reduced number of clinic visits, potential for quicker diagnosis and low rate of unnecessary scans. We feel our proposed setup requires less re-structuring of services, may make better use of current resources with a resulting improvement in efficiency.

The negative impacts highlighted in our pilot should reduce once the pathway is refined further to make the process more robust and streamlined. A larger study with direct comparison to the current pathway would allow further confirmation of our findings and highlight other potential strengths and limitations.

O-16 | Protocolised access to the MDT—Towards efficient and meaningful MDT discussion

Charlotte Murkin[1]; Dharmesh Patel[2]; Anna Slovick[1]; Paul Stimpson[3]

[1]Barts Health, UK; [2]University College London Hospital NHS Foundation Trust; [3]Barts Health and UCLH, UK

Aim: The multidisciplinary team meeting (MDT) remains the gold standard for decision making in the management of head and neck cancer patients. The aim of the MDT should be a comprehensive evaluation of all patients and bespoke care. The number of patients requiring discussion is growing and there is a need to control access to the meeting agenda in order to prevent repeat discussions and inadequate outcomes due to lack of information or incomplete investigations. We aimed to streamline two large neighbouring head and neck MDTs as a precursor to formal MDT unification. By improving data quality and providing guidance on MDT data requirements prior to referral we aimed to improve the efficiency of the MDT and reduce incomplete outcomes.

Method: We designed a network MDT referral protocol based on current UK National Multidisciplinary Guidelines. This was circulated to all core members for comment and local modifications were implemented. To evaluate the effectiveness of the protocol we retrospectively reviewed five consecutive MDT meeting agendas. A detailed analysis of the Barts Health MDT was performed as a proof of concept and then the principals were applied to the University College London Hospital (UCLH) MDT in order to confirm the findings.

Results: A total of 276 patient discussions were analysed (149 Barts Health, 127 UCLH) over the five-week period of this study in January 2018. In the Barts Health cohort, 53 patients (53/149, 35%) had incomplete or missing information resulting in rediscussion or "roll over" and lack of definitive outcome. In the UCH group, application of the protocol demonstrated 42 patient discussions (42/127, 33%) were inadequate, again resulting in incomplete MDT outcome. Overall, if the protocol were applied to both MDTs, 95 patient discussions could have been avoided due to incomplete information (95/276, 34%).

Conclusion: The MDT is vital for timely and effective management of head and neck cancer patients. Incomplete or inadequate information precludes meaningful discussion of patients and ultimately may result in a delay to patient care. Without complete information including named consultant, history, imaging and pathology reports a definitive MDT outcome is often not achievable. By implementing a referral protocol we have demonstrated that over 1/3 of patient discussions in our MDT could be enhanced. This reduces the need for "roll overs," improves pathway efficiency in addition to time saving benefits. The protocol described in this study is now in use for our network with ongoing, demonstrable improvements in MDT efficiency.

O-17 | Re-evaluation of the impact of an Enhanced Recovery Programme on total, pre- and post-operative fasting times

Sophie Rodd; Rebecca Mcbride; Liesl Wandrag

Guy's and St Thomas' NHS Foundation Trust, UK

Aim: An Enhanced Recovery Programme (ERP) was introduced in head and neck cancer surgery at Guy's Hospital in 2013 with the aim of improving surgical outcomes. Key nutritional principles include carbohydrate loading prior to surgery and early post-operative feeding, leading to shorter total fasting time (FT). A previous service evaluation has highlighted significant reductions in pre-operative FT since the introduction of a carbohydrate loading protocol, however only modest reductions in post-operative FT (Taskiran-Chaudry et al. 2015).Since then there has been a focus on reducing post-operative FT, including the development of a multidisciplinary "Head and Neck Surgery Feeding Protocol." This abstract aims to evaluate the impact of these service improvements on total, pre- and post-operative FT.

Method: Data was collected for all adult patients who had head and neck cancer surgery at Guy's Hospital.Patients were excluded if they did not receive exclusive enteral tube feeding for a minimum of 4 days post-operatively or if they were not admitted to critical care (GCCU) post-operatively. Data collection was prospective and took place over a 3 month period. Data collection included total, pre- and post-operative FT and nutritional intake in the post-operative period, including time to meet full nutritional requirements.

Results: There are nine patients were admitted to GCCU post-operatively andunderwent carbohydrate loading as per Trust protocol. The average total FT was 10.3 hours (SD = 4.7, Median 9.1). This represents a 48% reduction in total FT since the last service evaluation in 2015 (19.7 hours, SD = 10.7, Median 14.8). The average pre-operative FT was 3.2 hours (SD = 1.6, Median 2.5), a 16% increase since 2015 (2.77 hours, SD = 0.65, Median = 2.5). The average time to feeding post-operatively was 7.0 hours (SD = 4.8, Median 5.4), a 59% reduction since 2015 (17.0 hours, SD = 10.97, Median = 12.3). The time taken to reach target volume of feeding was 2.00 days (SD = 0.82), compared to 2.36 days (SD = 1.12) in 2015.

Conclusion: There has been an overall improvement in post-operative FT, total FT and time to meet nutritional requirements. A newly implemented "Head and Neck Surgery Feeding Protocol" recommends commencement of feeding within 4 hours of surgery. Although the average time to feeding post-operatively is 7 hours in this review, this is a significant reduction from 2015 when time to feeding was 17 hours. Joint working with GCCU colleagues and establishing barriers to early enteral feeding has been important for bringing about this change. This reduction corresponds with head and neck ERP guidance (Dort et al. 2017), which recommends feeding within 24 hours. The results show a small increase in pre-operative FT. However, reliable conclusions cannot be drawn due to skewing of data by one patient whose surgery time was delayed by 6 hours. Future work should continue to explore avoidable reasons

for delays and interruptions which contribute to sub-optimal nutrition post-operatively.

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O-18 | Salivary gland malignancies: Descriptive analysis from head and neck 5000

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Aim: Malignant salivary gland tumours are uncommon and have a reported annual incidence of 0.83-1.38 per 100 000 in the United Kingdom.[1] Obtaining good quality epidemiological and prognostic data is challenging for this patient cohort in view of the relative low incidence, potential for involvement of several anatomical sub-sites, and multiple histopathological diagnoses within the head and neck region.

Head and Neck 5000 (HN5000) is a large UK based longitudinal study and translational/biomedical resource that has recruited and followed 5511 people with a diagnosis of head and neck cancer. We use data from the HN5000 study to present a descriptive analysis that includes details of demographics, histopathological diagnosis, disease management and outcome, for a sub-group of participants presenting with a diagnosis of salivary gland malignancy.

Method: The establishment of the HN5000 study and methodology used has been described in detail.[2] In brief, a total of 5511 patients, with a new diagnosis of head and neck cancer, were recruited from multiple sites across the UK between April 2011 and December 2014. Baseline and follow up data was acquired from clinical notes, and a range of patient questionnaires. Blood, saliva, and formalin-fixed paraffin embedded (FFPE) biopsy were collected in parallel. Data was analysed using appropriate statistical methods.

Results: Data was analysed for 207 people with a diagnosis of salivary gland malignancy, affecting both major (56.5%) and minor (54.5%) salivary glands. The mean age at presentation was 59.8 years. Major gland malignancy was more common in males, with female predilection noted for minor gland sites. Tumour distribution in the major gland sites were: parotid gland (77.8%), submandibular gland (13.7%), and sublingual gland (7.7%). The oral cavity was the most common site for minor gland malignancy (62.8%) and most frequently presented on the palate (30.2%). The dominant histopathological diagnoses for all sites were adenoid cystic carcinoma (23.2%) and mucoepidermoid carcinoma (23.2%). Minor salivary gland malignancies presented at an earlier clinical stage compared with major gland sites. Surgery alone was the most common treatment of minor gland disease, whereas surgery was combined with chemoradiation to treat major gland malignancies. To date, 26.2% of people recruited with salivary gland malignancy have died.

Conclusion: This study presents a descriptive analysis of a subgroup of participants who were recruited to the HN5000 study with a diagnosis of salivary gland malignancy. We outline important details of patient demographics, clinical presentation, histopathological diagnosis, disease management and outcome.

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O-19 | SIP SMART—A parallel group randomized feasibility trial of swallowing pre-habilitation for patients with head and neck cancer

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Aim: Dysphagia affects the majority of patients treated for head and neck cancer, with many experiencing long-term impact on function and quality of life. *Pre-habilitation* offers good biological plausibility and has shown some promise. However, a recent Cochrane systematic review of pre-treatment swallowingexercises reported no clear efficacy, calling for new vanguard studies to address this uncertainty.[1]

SIP SMART—[Swallowing Intervention Package: Self-Monitoring, Assessment, Rehabilitation Training] aims to improve post treatment swallowing outcomes through a targeted and tailored pre-treatment intervention. The feasibility study reported here follows on from extensive intervention development work drawing upon behaviour change theory and implementation science.

The main aims of the current trial were to examine: 1) recruitment and retention, 2) patient acceptability of randomization and participation, 3) patient adherence and 4) the identification of a suitable primary outcome for a definitive trial, including sample size estimation.

Method: This single centre, two-arm parallel group randomized feasibility trial recruited patients newly diagnosed with stage III/IV head and neck cancer to a swallowing pre-habilitation study

with a 6-month follow-up.[2] A range of outcomes were collected at baseline, 1-month, 3-months and 6-month timepoints. Patients were randomized via an online web-based system (UK trials regulator approved), and were not blinded to their allocated group. SIP SMART comprised two 45-minute consultations delivered by a specialist speech and language therapist before cancer treatment. The package included baseline clinical measures and instrumental swallowing assessment, relevant educational information, targeted swallowing exercises, and specific behaviour change strategies to increase exercise adherence. Usual care comprised a single session including baseline clinical measures and generic information about the likely impact of treatment on swallowing. Both qualitative and quantitative metrics were collected over the duration of the trial.

Results: A total of 106 patients were identified at the multidisciplinary team meetings (pre-screening) of which 70 were assessed for eligibility. Twenty six patients did not meet eligibility criteria [0.37, 95% CI 0.27 to 0.49]. Five of 44 eligible patients were missed in clinic [0.11, 95% CI 0.05 to 0.24]. Seven of the 39 approached declined participation [0.18, 95% CI 0.08 to 0.33]. Target recruitment was achieved within the timeframe and recruitment ceased when 32 patients were consented. At 6-months 29 patients remained in the trial [0.91, 95% CI 0.76 to 0.97]. Acceptability to randomization and participation in the intervention was favourable, and adherence to the exercises exceeded the minimum criterion. The MDADI swallow related quality of life measure was deemed the most suitable primary outcome for sample size estimation. No serious adverse effects arose from the intervention, or participation.

Conclusion: Based on the a priori criteria, a definitive trial of the SIP SMART intervention compared to usual care is feasible and can be delivered within the clinical pathway for patients treated for head and neck cancer on the National Health Service. Information and lessons learned from the study around context and trial implementation will be useful for the next phase of this work. Whilst not an explicit feasibility aim, preliminary results favoured the new intervention adding to the rationale (succesful feasibility criteria) for taking the study forward to a larger multi-centre trial.

ISRCTN40215425

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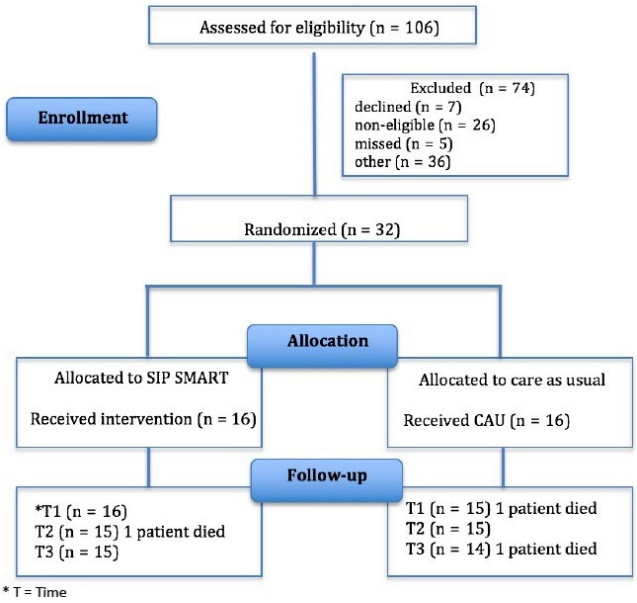

O-20 | The cytocidal effect of irrigation with water on cancer cells: Relevance to surgical practice

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Aim: The aim was to investigate the cytocidal efficacy of water on oral cancer cells. After a surgical resection and neck dissection for head and neck cancer, surgeons may irrigate the field with water. The use of water is based on the premise that cancer cells are more susceptible to osmotic lysis than normal cells. Theoretically, this lowers the number of cancer cells more than if only saline is used, potentially improving survival outcomes. However, evidence for its efficacy in head and neck cancer is limited.

Water lavage has been described for ovarian and colorectal cancer animal models and in vitro. The peritoneal cavity or equivalent is irrigated with water (or saline) for between 10 and 30 minutes. Results suggest greater cancer cell death with water but the literature also indicates poorer outcomes with water lavage in mouse models of these cancers.

Method: Two oral cancer cell lines (LuC4 and Ca1) were cultured as monolayers at 37°C in standard culture medium in 24-well plates. In order to determine the impact of water on other cell types, in addition to cancer cells, normal oral fibroblasts and immortalised normal oral keratinocytes (NOKs) were also cultured, in identical conditions. At Day 3, cells (n = 3 for all lines) were exposed to one of the three irrigation solutions; control phosphate-buffered saline (PBS), distilled water (dH_2O) or 2.5% povidone-iodine (P-I). This was for no more than 30 seconds, representing the typical period of exposure in the surgical environment. After this, cells were washed with PBS and trypsinised, and both their number and survival (live/dead status) determined using the NovoCyte flow cytometer.

Results: Comparing dH_2O to control solution PBS, there was no significant difference in either absolute cell number in the count or cell survival in any cell line or type, cancer or normal. Approximately 95% of all cells survived when exposed to these solutions. However, exposure to P-I led to a significant reduction of LuC4 cells (although not Ca1) and fibroblast survival (by 13.7% and 8.4% respectively, both $P < .02$) when compared to PBS. P-I application to fibroblasts also led to a significant fall in absolute cell number (to approximately 2% of control number, $P = .0023$). This may represent a limitation of in vitro culture or the more selective loss of fibroblasts with P-I. Clinical relevance to wound healing will also be investigated using wound healing assays.

Conclusion: Although evidence for the use of water against cancer cells in ovarian and colorectal cancer exists, its clinical relevance is unclear. Lavage is performed in a contained cavity and over a relatively long time period. Lavage with water is not possible in the same way in the head and neck. Normally, the operative field is irrigated with water for only a very short period.

The data generated here demonstrated no cell survival difference between irrigation with dH_2O or PBS. When further contaminated with tissue exudate and blood, water is extremely unlikely to have any impact upon the survival of any cancer cells present. P-I may have a greater cytocidal effect than water but its impact on fibroblast number has to be more fully evaluated before it can routinely recommended. With further investigation, this might be the irrigation solution of choice in the head and neck.

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O-21 | Too old for major free flap reconstructive surgery in Head and Neck cancer management?

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Aim: The increasing life expectancy of the population has resulted in an increasing incidence of elderly patients developing Head and Neck (H&N) cancer. Microvascular free flap reconstruction is often the optimal reconstructive option following ablative surgery. Elderly patients may be considered high risk for major surgery, due to their co-morbidities and decreased physiological reserves. We analyzed the surgical outcome of elderly patients undergoing free flap reconstruction for H&N cancer.

Method: A retrospective study, between 2016 and 2018, identified 18 patients over the age of 80 (two > 90 years old) undergoing ablation and free flap reconstruction for H&N cancer. The details and surgical outcomes of these 18 patients were reviewed.

Results: The free flaps included nine fibulas, five anterolateral thighs, twp latissimus dorsi, one radial forearm and one jejunal. The median length of hospital stay was 23 days and the mean length of ITU stay was 3 days. One patient had a significant surgical complication requiring a return to theatre. Ten patients experienced systemic complications, with four developing delirium. Twelve out of 16 patients were alive at 1 year.

Conclusion: There is an increasing need for reconstructive surgery in the elderly. Our data showed that whilst there were minimal surgical complications, these patients frequently experienced postoperative medical problems. Management of H&N cancer in this population requires weighing of risks and benefits, and quality of life issues. Despite the challenges, this cohort of patients can be safely treated surgically, however a perioperative geriatric physician input may be desirable.

O-22 | What is the evidence for clinical benefit in using proton or carbon ion therapy in head and neck cancer?

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Aim: With the introduction of a national proton therapy service into the UK, in 2019, some patients will have to travel considerable distances to access this innovative treatment modality. It is therefore important to demonstrate where proton therapy has been shown to have a positive clinical benefit, and which head and neck cancer subsites show most clinical gain, to enable optimal patient selection for proton therapy, which may be expensive in both time and resource

costs. Equally important, is to show where there is no demonstrable proven benefit for particular head and neck sites and tumour biologies, and where current advanced radiotherapy technologies such as Intensity Modulated RadioTherapy (IMRT), or arc therapies may give as good outcomes, with the advantage of being delivered locally to the patient. The evidence for carbon ion therapy in head and neck cancer will also be included.

Method: A literature search was performed for both head and neck cancer with proton therapy and carbon ion therapy, and this showed a limited literature for use of both modalities in head and neck cancer (HNC). There were a large number of papers dealing with the physics and the dosimetric challenges involved and the optimisation of beam delivery and patient selection. There have been <30 papers in the literature in the last five years dealing with the clinical use, outcomes and benefits of proton therapy in HNC and even fewer dealing with carbon ion treatment.

Results: At present there are no prospective randomised controlled trials (RCT) published comparing proton therapy with Intensity Modulated RadioTherapy (IMRT) or ARC therapies in HNC. There is one ongoing prospective RCT, NCT 01893307, which will not report until at least 2023. Publications dealing with patient outcomes are mostly described in terms of toxicity reduction rather than improved survival benefit. Older reviews emphasise the *potential* for the use of proton therapy in HNC, and early studies using proton beam boosts within photon protocols have given a mixed and imprecise view of the proven outcome benefits for the use of proton's carbon irons in the common head and neck cancers. The carbon ion beam literature is even more limited, but one of our authors (SC) is pursuing the development of a carbon ion facility in his own hospital.

Conclusion: The use of proton therapy and to lesser extent carbon ion therapy, is increasing in head and neck cancer but this does not reflect the published evidence for survival benefit. This is an important issue as in the next few years, patients will be referred to the two national Proton Centres for management of HNC, and it is essential that we can describe which patients with cancers affecting particular HNC subsites, may benefit most from these new technologies, and where the evidence would suggest that the newer photon techniques, such as IMRT or arc therapies, may give as good outcomes and save patients travelling considerable distances for unproven benefit.

Reference: 1. Randomized Trial of Intensity-Modulated Proton Beam Therapy (IMPT) Versus Intensity-Modulated Photon Therapy (IMRT) for the Treatment of Oropharyngeal Cancer of the Head and Neck https://clinicaltrials.gov/ct2/show/record/NCT01893307?view=record