

Day Case Neck Surgery: The Southampton Experience

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Abstract

Introduction

The majority of head and neck surgery is traditionally performed as a planned inpatient procedure. We present our experience of day case neck surgery at a tertiary center.

Methods

We performed a retrospective chart review of consecutive patients who underwent neck surgery from June 2017 to June 2019, under the same senior surgeon. The patients who had day case neck surgery were identified, and their records were analysed.

Results

A total of one hundred and forty-five (145) patients had neck surgery in the form of a neck exploration involving dissection deep to the superficial layer of deep investing fascia with some major vessel exposure and or dissection, forty-one (41) were day cases without insertion of a drain or use of adjuncts such as glues. Twenty-nine (29, 71%) of these cases were neck dissection and twelve cases (12, 29%) were parotidectomy. No patient has had hematoma, haemorrhage, or wound infection.

Conclusion

Our study demonstrates that neck surgery can be performed safely on a day case basis. This is particularly relevant in the COVID-19 era, where inpatient admission should be prevented as much as possible, but cancer treatment is not delayed.

Introduction

The majority of head and neck surgery is traditionally performed as a planned inpatient procedure due to a variety of reasons namely, but not limited to, the complexity of the surgical procedure, perioperative management, patient factors, and surgeon preference. One of the common reasons for an inpatient hospital stay is due to the insertion of a surgical drain.

Some surgical units make use of community-based nursing teams to remove a patient's surgical drain at their home, facilitating day case care.

There is an impetus in the UK National Health Service (NHS) to perform head and neck surgery on a day case basis. Increasingly, there is a shift toward ambulatory services, directed by patient choice, technological advances, and the opportunity for cost savings.¹ Day case care can be cost effective and, in addition, can make head and neck units more efficient.²

Furthermore, during the present unprecedented COVID-19 crisis, when the majority of elective surgical work has been suspended or postponed, suspected cancer or cancer case work is still going on, under a case-by-case basis. The British Association of Head & Neck Oncologists (BAHNO) have recommended prioritizing day case head and neck cancer surgery where feasible.³

We present our experience of day case neck surgery from the University Hospital Southampton NHS Foundation Trust, a tertiary center in the United Kingdom. We believe that our findings from performing a variety of multi-level neck dissections (including neck exploration or dissection deep to the superficial layer of deep investing fascia with some major vessel exposure and or dissection) will provide an evidence-base to support safe day case neck cancer surgery during the COVID-19 crisis and beyond, but these protocols are equally applicable to the broad range of non-cancer head and neck procedures in routine day-to-day practice. The unit has an extensive practice treating substance abuse patients who presented with metastatic neck disease. The senior author (TS) noted that several patients despite having adequate analgesia and detoxification would abscond from the hospital on recovery within hours of surgery only to return a few days later for suture removal. In this cohort of patients, no complications were observed leading to the hypothesis that if this early self absconsion discharge to the community was possible in this vulnerable group, could straightforward neck surgery patients also benefit from early discharge in the absence of any intra-operative contraindications. The main advantages would include reduction of nosocomial infections, early normalization of habitus and better throughput of patient numbers due to freeing up of beds. A nurse led discharge protocol with safety criteria and analgesia pack was agreed and it has now become his established practice when treating neck disease since 2017.

The data presented here is part of our larger and broader case series of 145 consecutive patients who underwent head and neck surgical procedures at the University Hospital Southampton NHS Foundation Trust without the use of percutaneous drains or any associated adjuncts, but this report particularly focuses on those undertaken on a day case basis.⁴

Methods

A retrospective audit was undertaken, registered, and approved by the University Hospital Southampton NHS Foundation Trust's audit and clinical research department (Audit number 6582). All consecutive patients undergoing Head and Neck surgery on a day surgery basis, between June 2017 and June 2019, under the practice or supervision of the senior author (TS) at the University Hospital Southampton NHS Foundation Trust were included.

As per the hospital policy majority cases, except e.g. single level diagnostic lymph node excision, were listed as an inpatient as standard practice of neck surgery entails a drain insertion and or over night stay. This cohort was reviewed to identify those who had undergone day case surgery. Day case surgery was defined as surgery where the patient was admitted and discharged on the same day i.e. there was no overnight stay.² Any patient under the practice or supervision of another consultant was excluded.

In terms of the senior author's operative practice, patients requiring neck dissection surgery (benign, malignant or unknown despite repeated fine needle aspiration cytology) underwent dissection of required full nodal groups (level 1, 2, 3, 4, 5, 6, 7 individual or a combination there of) as per normal department practice and MDT recommendation, to limit further surgery in an already dissected field, should samples subsequently return malignant. The extent of any parotid and neck surgery was dictated by the senior author (TS) in combination with MDT recommendation where available but was usually in the form of a neck exploration or dissection deep to the superficial layer of deep investing fascia with some major vessel exposure and or dissection.

The data was gathered from retrospective review of the electronic patient records (EPR) of all included day case patients. The data was independently collected and checked (MJ and TB). The data was entered into Excel® (Microsoft, Redmond, WA, US) and analysed using GraphPad Prism 7 (GraphPad Software Inc, La Jolla, CA, US).

Results

One hundred and forty-five (145) head and neck surgeries were performed from June 2017 to June 2019, within the Department of Otolaryngology, Head and Neck Surgery, at the University Hospital Southampton NHS Foundation Trust, under the named consultant. Of these, forty-one (41/145, 28%) were undertaken as day surgery.

Twenty-nine cases (29/41, 71%) were neck dissections and twelve cases (12/41, 29%) were parotidectomy. The age range was three to ninety-three years (3 to 93 years). There were eight children i.e. age less than sixteen years (8/41, 20%) and thirty-three adults. The procedures were undertaken by various grades of surgeon, including the consultant in thirty-three cases, the fellow in two cases and a training registrar (resident) in six cases, under direct supervision. No drains were placed at the time of surgery for all cases. No adjuncts such as glues, adhesives or specialized dressings were used. The ultimate histological diagnosis was benign for thirty-six cases (36/41, 88%, neurofibroma, branchial cyst, dermoid cyst, thyroglossal duct cyst, parathyroid cyst, lipoma, pleomorphic salivary adenoma of submandibular gland, schwannoma of vagus nerve) and malignant for remaining five cases.

Out of twenty-nine cases of neck dissection, nineteen cases (19/29, 66%) had a complete single-level neck dissection and the remaining ten had multi-level neck dissections (10/29, 34%). Tables 1 provides information on age, levels of neck dissections, diagnoses and TNM (Tumour, Node, Metastasis) staging, on multi- level neck dissection cases.

Table 1: Multi-level day case neck dissection cases.

Number	Age	Levels of neck dissection	Diagnosis
1	48	II, III	Benign
2 [†]	48	II, III	SCC (Tx N1 M0)
3 ^{†‡}	59	III, IV & V	Benign
4	25	I, II	Benign
5	62	II, III, IV	Benign
6	45	II, III	Benign
7 [§]	76	II, III	Neck recurrence (rT3N2b)
8	14	II, III	Benign
9	88	III, IV	Benign
10	71	II, III, IV	SCC (T1 N2a M0)

[†] Performed by a trainee, [‡] Revision case,

[§] Post CT RT Recurrence Carcinoma tonsil- rT3N2b, previous T3 N0 M0.

Out of twelve parotidectomy cases, nine were of superficial parotidectomy, one of deep lobe parotidectomy and two were revision cases. The revision cases were of recurrent mucoepidermoid carcinoma and recurrent pleomorphic adenoma. The final histology was benign in eleven cases and there was one malignant case of recurrent mucoepidermoid carcinoma.

There was one case of an expected accessory nerve weakness following a level II & III neck dissection for neurofibroma of the carotid sheath. None of the forty-one-day case patients had post-operative haemorrhage or hematoma, but we acknowledge the limitations in this cohort's size.

Discussion

This study reports consecutive cases of neck surgery comprising of single- and multi-level neck dissections (in the form of a formal neck exploration or dissection deep to the superficial layer of deep investing fascia with some major vessel exposure and or dissection) or parotidectomy procedures performed as day case surgery without insertion of a surgical drain.

The patients' age ranged from three to ninety-three years (3 to 93 years) and twenty percent (20%) were paediatrics cases. The neck dissection cases involved a broad range of intention to treat ENT diagnoses e.g. metastatic lymphadenopathy, and among benign pathologies neurofibroma, branchial cyst, dermoid cyst, thyroglossal duct cyst, parathyroid cyst, lipoma, pleomorphic salivary adenoma of submandibular gland, schwannoma of vagus nerve.

This demonstrates the wide patient population and various pathologies which safely have had day surgery without the use of a surgical drain. The study also highlights the feasibility of undertaking day case drainless surgery practice by a trainee, under the supervision of an experienced surgeon.

In terms of complications, though it can be argued that this is a relatively small sample size, no patient in this cohort of 41 patients have had a haemorrhage or haematoma or deep space infection or airway problems. However, even in our larger case series of 145 patients which included cases of – neck dissection, thyroidectomy (hemi, total or revision), parotidectomy (superficial, deep or total) or a combination of some or all of these procedures, only 2/145 (1.4%) patients had complications potentially attributable to lack of post-operative drain use.⁴ One hemithyroidectomy patient had some surgical emphysema following a bout of heavy coughing after the procedure, requiring local anaesthetic drain insertion, and one case of parotidectomy with level 2-4 neck dissection had a small post-operative haematoma which required a pressure dressing and oral antibiotics, but no surgical intervention. This patient was taking aspirin at the time of surgery but had stopped his clopidogrel 5 days' prior, restarting it on the first postoperative day.

For intermediate risk groups i.e., risk of haemorrhage in the first eighteen hours post-surgery, a nonclinical overnight stay within close range to the hospital may be commended but no one in the study group required this. However, we do recommend access to vehicle transport, a working mobile phone with good reception and adherence to the discharge emergency planning advice in case of issues. Once again no one in this cohort required such emergency admission. Thus, appropriate case selection and meeting discharge criteria is paramount if patient were to undergo day case neck surgery.

We also used loupe magnification and the HARMONIC FOCUS[®]+ Shears (Ethicon, J&J Medical Devices, NJ, USA) for the majority of the dissection, in combination with monopolar and bipolar dissection. It could be postulated, anecdotally, that these devices seal vascular and lymph vessels better than cold steel and monopolar/bipolar, avoiding insertion of a surgical drain, thus, aiding a day case surgery.

'Day case surgery in Scotland - Reviewing progress - Audit Scotland'² states that if same-day care directly substitutes for inpatient surgery and inpatient beds are reduced, then cost savings will be achieved. However, in many cases these beds will be made available for other patients. If this happens, although cost savings are not achieved, resources are released that can be put to alternative use. For example, much of the surgical team's time will transfer from inpatient to day case treatment. In this situation total costs may stay the same or rise but more patients will have been treated in a less expensive way so the cost per case will fall. Both these scenarios are cost-effective; the reduction in the use of inpatient beds achieves a real cost reduction and the substitution of day case treatment for inpatient treatment makes the head & neck unit and the hospital more efficient.² Thus, the consideration of our procedures as potentially day case candidates and then the safe realization of that hypothesis goes some way to demonstrate the beneficial cost implications and improvement in efficiency of a hospital.

Cunniffe et al.⁵ have shown that parotidectomy can be undertaken safely as a day-case procedure with the application of ARTISS fibrin sealant. Furthermore, they stated that this new approach to parotid surgery not only offers less morbidity for patients but also positive financial revenue for public health institutions. Chua et al. ⁶, in a randomized case control study, demonstrated that partial superficial parotidectomies could be performed drainless with fibrin sealant and a pressure bandage - however, their patients stayed overnight.

Coniglio et al.⁷, in retrospective review of 91 parotidectomies, demonstrated that outpatient drainless parotidectomy is a viable procedure with comparable outcomes to traditional extended-stay parotidectomy with drains. However, this study was isolated to a single surgeon's outcomes, and only reviewed parotidectomies.⁷ In contrast to other research papers, our study represents different head and neck operations and surgeons of varying seniority, and also did not require the use of fibrin sealant, pressure bandage or other adjuncts suggested in the literature. Our study, as a result, raises possibility to change conventional neck surgery practice.

During the COVID-19 crisis such a protocol has allowed the continued safe surgical treatment of patients with reduced risks of inpatient infection and reduced bed utilization. Loupe magnification combined with meticulous anatomical planer surgical dissection and detailed attention to haemostasis (head down, Valsalva, and wound irrigation to observe and eliminate any minor bleeding points) along with sensitive wound closure without the use of a surgical drain. Such surgery requires a significant team cooperation especially between surgeon and anaesthetist but also with recovery and discharge staff. We now perform the majority of our neck surgery (multi-level neck dissection, thyroidectomy, parotidectomy on their own or in any combination of above) without using surgical drains and more cases are discharged safely on day basis.⁴

Our retrospective consecutive patient study demonstrates that neck surgery, including multi-level neck dissection and parotidectomy procedures, can be performed safely without the use of percutaneous drains or other adjuncts, on a day case basis. Our practice, therefore, has potential for cost-effectiveness and improvement in efficiency for head and neck units and hospital performance. We believe that our findings have potential impact on delivery of head and neck cancer care in the ongoing restrictions of the COVID-19 crisis period.

Declaration of Conflict of interest:

The authors have no conflict of interest to declare.

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