

## P258

**Changes to the Nasopharyngeal and Oropharyngeal Spaces After Isolated Maxillary Advancement**

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**Introduction:** The aim of this retrospective observational study was to determine changes in the upper airway space following Le Fort 1 osteotomies for maxillary advancement.

**Methods:** The study included 50 healthy patients, 25 males and 25 females who underwent maxillary advancement only. All patients were skeletal class III, predominantly with a retruded or hypoplastic maxilla. Vertical maxillary excess and anterior open bite cases were excluded, as were patients with sleep disorders. Landmarks were recorded on digitised cephalometric radiographs. A range of linear parameters were assessed both pre- and post-operatively including: airway space at naso-pharyngeal, oro-pharyngeal and hypopharyngeal levels; length and angle of soft palate; tongue height; and relative positions of the hyoid bone and valleculae. The area of the nasopharynx and oropharynx was also recorded.

**Statistical Analysis:** Reliability between tracings were calculated by Pearson's correlation coefficient. Statistical evaluation of the cephalometric data used the unpaired *t*-test to determine statistical significance. A *p*-value of < 0.05 was considered significant.

**Results and Conclusions:** Average age of participants was 22 (range 18-42). This study showed significant differences in sex dimorphism for the majority of soft tissue parameters measured. The mean advancement for 50 osteotomies was 7.8 mm. There were statistically significant increases in both the nasopharynx and oropharynx postoperatively. We conclude that isolated but significant maxillary advancements increase not only the nasopharyngeal area but the oropharynx as well. This may indicate a significant role of the palatoglossus and palatopharyngeus muscles in improving upper airway space, and in particular, orthognathic surgery for obstructive sleep apnoea.

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## P259

**A 12 year retrospective review of Outcomes in Orthognathic Surgery (2004-2016)**

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**Aim:** To investigate factors affecting length of stay and readmission following orthognathic surgery.

**Methods:** Data was collected from prospectively completed departmental and hospital databases. This data was further verified by retrospective analysis of patient medical

records. Data was collected on patient demographics, operation type and duration, reasons for readmission.

**Results:** Data was collected from 829 patients. The mean length of stay for patients has decreased from 2.7(2004) to 1.3(2016). Mean age and gender ratio remained unchanged. There is an association between operation time and length of stay. Over this period 12 patients were readmitted following their surgery.

Discharge delay beyond 48 hours were due to severe nausea 4%, operative complication 20% (post-operative bleeding or return to theatre), comorbidities 30% (obstructive sleep apnoea and diabetes), delay in eating and mobilizing 46%.

**Conclusions:** To our knowledge this is the largest study examining length of stay in orthognathic surgery in the UK. A target benchmark of 23hour admission following orthognathic has been described in the literature. This will reduce overall cost of procedure and reduce A&E breach and elective cancellations penalties. Delay in discharge can be tackled by the provision of post-operative one-to-one nursing to encourage early mobilization and eating. Alternatively, early discharge can be supported by an outreach nursing team in the community as piloted following hip replacement surgery.

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## P260

**Prevalence of Infections Following Orthognathic Surgery at Mid-Yorkshire Hospitals Trust and risk factors contributing to this**

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**Aims:** The purpose of this service evaluation was to investigate the prevalence of infections following orthognathic surgery at Mid-Yorkshire Hospitals trust and to investigate risk factors.

**Methods:** All patients (n = 55) undergoing orthognathic procedures between January 2015 and August 2016 were included in the retrospective evaluation. Medical records were assessed and factors including age, smoking status, operation type and duration of operation were recorded.

**Results:** 16% (n = 9) of patients developed infections post-operatively. Within these 9 patients, 4 operations were on the mandible alone and 5 were bimaxillary osteotomies. 3 infections occurred in the maxilla and 5% (n = 3) of patients had infections at two different sites. 55% of patients who developed infections were smokers (n = 5). 33% were noted to have poor oral hygiene postoperatively, 1 was associated with an unfavourable split (11%). 1 patient was diabetic. All patients received a single preoperative and two postoperative intravenous doses of antibiotics. In 67% of the patients with infection, this necessitated hardware removal. The average length of surgery (including anaesthetic time) for patients who did

not have an infection was 4 hours 11 minutes in comparison to 3 hours 48 minutes for patients who did have an infection.

**Clinical Relevance:** We are following the national clinical guideline on antibiotic prophylaxis in surgery recommended by SIGN. Postoperative infections are associated with smoking and poor oral hygiene. Patients undergoing orthognathic surgery should be screened and encouraged to cease smoking, at least perioperatively. Patient demographic and operation duration were insignificant.

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## P261

### Is it justifiable to admit Orthognathic surgical patients for less than 23 hours? A single surgeon's experience

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**Introduction:** To assess how long, on average orthognathic patients are admitted to a ward following their surgery and to investigate if there were any immediate re-admissions or complications after discharging these patients.

**Method:** 32 patient records were assessed and the number of hours patients were admitted to a ward following surgery was investigated. Hospital admissions were examined to investigate if there were any immediate readmissions or complications.

**Results:** 91% of patients were discharged within 23 hours or less. 78% (n = 25) of patients were discharged after being admitted to a ward for 20 hours or less. This ranged from 16 to 20 hours. 3 patients were discharged after spending 2 nights in hospital due to pre-existing medical comorbidities. Of the surgeries 72% were bimaxillary osteotomies and 28% had single jaw surgery.

**Conclusion:** 91% of our patients were discharged within 23 hours and there were no immediate readmissions. In the current NHS climate, treating orthognathic patients as 23 hour admissions could help to reduce bed pressures, helping to alleviate stretched NHS resources and reducing the risk of last-minute procedure cancellations. It would facilitate a more efficient and effective use of resources while maintaining patient safety. Shortened hospital stays and earlier mobilisation also can help to reduce the risk of hospital acquired infections and venous thromboembolism.

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## P262

### An Audit of Postoperative Complications following Orthognathic surgery at Mid-Yorkshire Hospitals Trust

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**Introduction:** In order to obtain meaningful consent it is important to audit local postoperative complications rather than stating national averages.

**Methods:** A retrospective review of medical records looking at immediate and longterm complications after orthognathic surgeries were recorded by reviewing patient notes postoperatively from January 2015 to August 2016.

**Results:** There were 55 patients between the ages of 18 to 42 years old. The average age was 24 years and there were 33 females (60%) and 22 males (40%). Immediate complications include 1 significant postoperative bleed (1.8%), 1 (1.8%) had a deviated nasal septum as a result of surgery. 1 patient (1.8%) had an unfavourable split of the mandible. Long term complications include nine infections postoperatively (16%), 1 case of progressive condylar resorption (1.8%).

**Clinical Relevance:** In comparison to various studies, our postoperative infection rate is higher than infection rates stated in the Orthognathic Commissioning guide of 11.2% to 3.8%. It has been suggested that long term antibiotics are more effective however we will wait for more studies before changing our practice. We are currently following the SIGN Guidelines. Our complications were lower on other aspects such as unfavourable osteotomy, excessive bleeding and soft tissue damage. Despite the great variety of severe complications reported, their frequency seems to be extremely low. It can be concluded that Orthognathic surgery appears to be a safe procedure.

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## P263

### 3D Orthognathic Surgery Protocol Evaluation

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**Aims:** The aim of this study was to verify the effectiveness of the orthognathic surgery protocol adopted at Maria Cecilia Hospital, which incorporates the newest available technologies into a patient's orthognathic surgery treatment.

**Methods and Materials:** The 3D workflow for orthognathic surgery is composed of 3 steps:

- 1) 3D data acquisition of the craniofacial complex by cone-beam computed tomography (CBCT- Newtom VGiEVO QR™), dental occlusion surface scanning (Trios Color™ 3Shape), 3d facial scanning (FaceHunter™ Zirkonzahn).