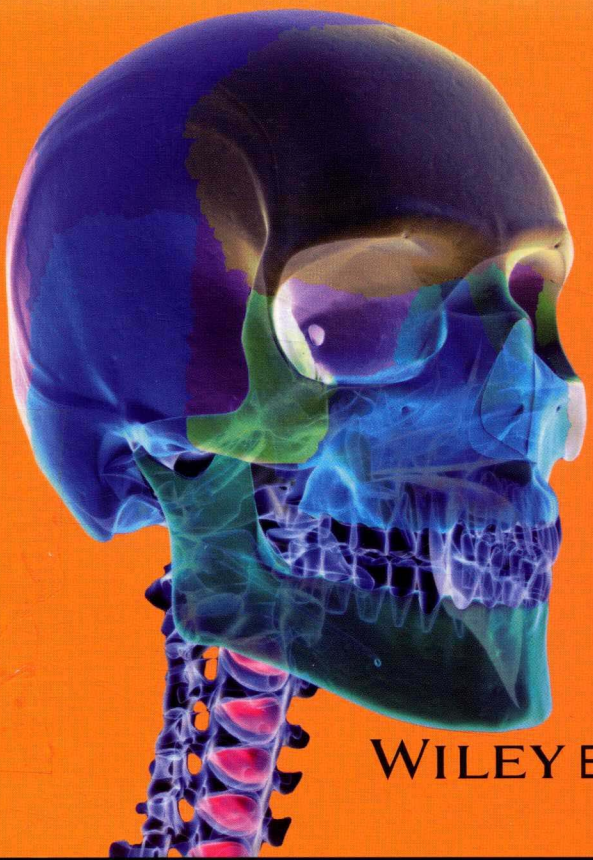
NICOLA ROGERS
AND CINZIA PICKETT

# Basic Guide to ORAL AND MAXILLOFACIAL SURGERY





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# BASIC GUIDE TO ORAL AND MAXILLOFACIAL SURGERY

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# Basic Guide to Oral and Maxillofacial Surgery

# How to use this book

This book is a basic guide to maxillofacial surgery, and has been written with dental nurses in mind. It could however be used by other members of the dental team as a self-explanatory resource.

It has been compiled in order that after reading this any dental nurse, whether working in a dental practice or a specialist maxillofacial unit, would have a clear appreciation of their role during the procedures that fall under the umbrella of maxillofacial surgery. It has been written in a user-friendly manner to aid student dental nurses preparing to sit the National Examining Board for Dental Nurses' National Diploma in Dental Nursing.

There is no intention of instructing/criticising clinicians or any professionals on their role in the clinical environment, which has only been explained to further the knowledge of dental nurses throughout this book. Any offence is entirely unintended and apologies are tendered for any perceived affront. The contents of this book should not be used for diagnostic purposes.

Dental nurses are subsequently reminded/warned that on no account should they undertake any duty that is solely the province of any other General Dental Council or Health Care Professional.

# Acknowledgements

To my husband David, whom I am very proud for his own personal achievements, for the love, perseverance and continual support he has shown whilst I have been co-writing this book. He is one of the most inspirational men I know and without him I wouldn't achieve the things I do.

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Photographs by David Rogers courtesy of Bristol Dental Hospital.

**Nicola Rogers**

Writing this book has been a journey which began as a simple idea. That journey has been an incredible experience, the course of which has led me to develop a deep sense of gratitude to so many people. I am truly thankful to all of them for their combined help and support which cannot be adequately measured or expressed.

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**Cinzia Pickett**

# Contents

# Chapter 1

# Introduction

## LEARNING OUTCOMES

At the end of this chapter you should have an understanding of:

1. Where maxillofacial surgery is carried out and by whom.
2. The procedures that are included under the umbrella of maxillofacial surgery.
3. Why maxillofacial surgery is undertaken.
4. The members of the dental team that make up the maxillofacial team.
5. The referral system.
6. The legal aspects associated with the provision of maxillofacial procedures.

## INTRODUCTION

Maxillofacial surgery forms an appreciable part of daily practice for the non-specialist dentist. Some restrict their practice to straightforward extractions while others undertake a wide range of surgical procedures associated with the jaws, teeth and soft tissues. Many refer to this practice as minor oral surgery. There are specialist centres and departments within local dental and general hospitals where clinicians are committed to procedures that come under the umbrella of maxillofacial surgery. These include:

- Straightforward extractions.
- Surgical removal of impacted and broken-down teeth.
- Surgical removal of retained roots.
- Biopsies, which involve a sample of tissue being removed and sent for diagnosis to confirm or eliminate a diagnosis.
- Exposure of impacted canines for patients undergoing orthodontic treatment.
- Frenectomy, which is where either the labial or lingual frenulum is released.

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- The removal of cysts.
- Alveolectomies, undertaken prior to dentures being supplied to a patient. This involves the smoothing off of the alveolar ridge.
- Performing apicectomies where other root treatments have failed or it is impossible for them to be carried out. In dentistry an apicectomy comes under the auspices of endodontic treatments; however, as they involve raising a flap, it is classed as a surgical procedure.
- Removal of tumours.
- Reconstruction of the face following trauma or removal of facial tissues and structures.
- Cosmetic treatments such as a face lift, rhinoplasty (the correction and reconstruction of the nose) or otoplasty (ears that stick out), commonly known as bat ears.
- Orthognathic surgery, which is where surgical intervention is undertaken to correct jaw discrepancies.

For a clinician to undertake the last four procedures he/she must be dually qualified in dentistry and medicine.

The reason these procedures may be undertaken can be attributed to disease, accidental injury, congenital malformation, periodontal problems and caries. These treatments can be carried out with the use of local anaesthetic, either on its own or in combination with a form of conscious sedation, or a general anaesthetic, thereby involving many team members.

The maxillofacial team comprises the following members:

- Consultant.
- Registrar.
- Oral surgeons.
- Senior house officers.
- Dental nurses.
- Anaesthetists.
- Recovery nurses who are state registered, with anaesthetic training.

When patients are being treated for cancerous lesions, a multi-disciplinary team approach involves additional team members. These are:

- Oncologists (a specialist who treats cancerous lesions).
- Radiologists (a specialist in interpreting images of the body).
- Microbiologists and pathologists (who study micro-organisms and how they affect the human body).
- Specialist head and neck nurses (registered general nurses).
- Macmillan nurses (registered general nurses who specialise in the care of oncology patients).

- Speech and language therapists (specialists who are trained to aid patients with their speech).
- Dieticians (a specialist in nutrition or dietetics).

## PATIENT REFERRAL

Patients are referred to specialist units and departments within local dental and general hospitals where maxillofacial surgery is undertaken. Reasons for referring patients can include the following:

- It is thought that the patient will be managed more appropriately due to the complexity of the treatment required, or their medical history.
- The patient's general dental practitioner requires a specialist opinion.
- The patient's general dental practitioner does not offer the treatment the patient requires.
- The general dental practitioner offers the treatment the patient requires, but does not offer the method of pain and anxiety control the patient requests.

When a general dental practitioner refers a patient for maxillofacial treatment they must provide a referral letter which will, as a minimum, contain the following information:

- Patient personal details: name, address, telephone number and date of birth.
- Patient medical history.
- The presenting dental problem.
- The reason for the referral.
- The name and contact details of the referring general dental practitioner.
- Any radiographs taken.

Many specialist units and departments within local dental and general hospitals have forms that can be completed to make the referral process easier. If the general dental practitioner or the patient's general practitioner suspects a cancerous lesion, they can use a fast track referral form. Some forms request additional information to that listed above in order to allow the member of the maxillofacial surgery team assessing the referral form/letter to assign a suitable time frame for the patient to be seen. Once this has been undertaken, an appointment will be sent to the patient for a consultation. Once the patient has been seen by the specialist unit or departments within local dental and general hospitals, an outcome letter is sent to the referring practitioner. This will contain a diagnosis and whether the patient has been or will be treated by a member of the maxillofacial team, or are being returned into the care of a general dental practitioner or general practitioner for ongoing treatment and care. Any dental radiographs furbished by the general dental practitioner will be returned.

## LEGAL ASPECTS ASSOCIATED WITH MAXILLOFACIAL SURGERY

The legal aspects associated with maxillofacial surgery are no different from any other specialist field within medicine and dentistry. On a daily basis, the maxillofacial surgeon must consider the following legal and ethical issues:

- Negligence.
- Confidentiality.
- Consent.
- Accusations of assault.

### Negligence

For a member of the maxillofacial team to be negligent, they will have acted outside the law and/or will have undertaken treatment that is not satisfactory. All members of the maxillofacial team have a duty of care to ensure that every patient is treated safely, with a high standard of care being provided. Good communication with patients and the rest of the maxillofacial team is therefore paramount to avoid any misunderstandings. The taking of consent is mandatory, as this will provide documentation of which treatments were agreed and those that were not. Well-kept dental notes will provide a history of the patient's past, present and future treatment. All members of the maxillofacial team must be trained for their area of responsibility and must not work outside that remit and scope of practice. A safe clinical environment should be provided for all, with any equipment being serviced at recommended intervals to avoid any accidents or incidents.

### Confidentiality

When a patient provides the maxillofacial team with any information about themselves, they expect it to be kept confidential. This means that all members of the maxillofacial team must not divulge any information relating to patients. They must also ensure that all precautions are taken to prevent any information being divulged unintentionally. All patient information must be kept secure as patients discuss delicate issues with the maxillofacial team/clinician pertinent to their treatment. Patient information cannot be released without the consent of the patient. However, there are exceptional situations where patient information can be disclosed without requesting the patient's consent. These include:

- Where it would benefit them (e.g. their health was at risk).
- Where it was considered that a serious crime was imminent.
- In the interests of the general public.

If any of these situations occur the patient's consent should ideally still be sought and, if not given, only minimal information should be released. Patients should always be aware that their information may be shared with other health-care professionals. Confidentiality extends after the death of a patient.

## Consent

When taken, consent can help to protect the maxillofacial surgeon from complaints, claims and charges as documentary evidence will be available of all discussions held. Consent is a process where one person grants another permission to undertake something such as maxillofacial surgery. It is given once the patient consenting is aware of what is going to happen, and they can withdraw their consent at any time. Consent can be obtained in any of several forms. It can be written, verbal or a compliant action. Obtaining written consent from a patient is a must for all maxillofacial surgery, as complications may occur. Forms are available for use and, when completed, will contain the patient's personal details as well as the practice details. It must be completed in ink without any abbreviations being used. The age of the patient and the capacity of a patient to consent will determine which consent form is to be completed. It will be signed by both parties, with a copy being given to the patient. If the patient does not want a copy, then this must be recorded in the notes.

Only the member of the maxillofacial team qualified to undertake the proposed treatment can take consent from a patient. Consent should be obtained in a quiet, private area to maintain patient confidentiality. All aspects of treatment will be discussed and the patient must be allowed to ask questions. Dental nurses cannot take consent, but best practice would be to ensure that consent is in place prior to maxillofacial surgery. For consent to be valid, a patient must have the mental capacity to give consent and give it voluntarily. They must be able to understand and retain the information given, contemplate it and come to a decision themselves. The maxillofacial team must describe to the patient all aspects relating to treatment which must include the advantages and disadvantages, any associated risks, alternative treatments, time frames of the proposed treatment and associated costs. Consent forms can vary according to the clinical environment; many hospitals and trusts utilise the NHS consent forms, therefore providing standardisation.

## Assault

Any maxillofacial surgery undertaken without a patient's consent is regarded as assault, and the member of the team who undertook such treatment could therefore be accountable for any implications arising. As patients can make allegations of assault, maxillofacial surgeons must always be chaperoned with consent in place.

## RECORD KEEPING

The maintenance of a patient's dental records/notes is paramount with contemporaneous notes being beneficial to both the patient and the maxillofacial surgeon. Failure to maintain these could lead to serious implications for both the patient and the maxillofacial surgeon as they provide personal details pertaining to a patient and a chronological account of the treatment the patient has received or any that is pending. They will include details of any discussions that have been held, including those during the consent process. It must be remembered that records of the patient extend to photographs, radiographs and study models and that all must be correctly processed, only used for the purpose for which they were intended and disposed of correctly when no longer required.

Medical, dental and social histories must all be documented and considered by the maxillofacial surgeon so that the patient receives the best possible care. Failure to ensure this could mean that patient care is compromised, which could lead to litigation.

### Medical history

It is essential for a medical history to be taken in order to provide individual care, tailored to the patient's needs. This is usually gained through a questionnaire which asks set questions pertaining to any illnesses the patient has or has previously suffered. It will contain questions relating to any medication the patient takes, both prescribed and non-prescribed, including recreational. Other information requested will be family history, previous operations with or without a general anaesthetic, any recent travel abroad, and drinking and smoking habits. From this a clear picture of the patient's medical status can be formed before providing any maxillofacial treatment. A patient's medical history must be updated every time they attend for treatment in order to establish if there have been any changes; if so, their impact on the patient's treatment plan must be assessed and the treatment plan modified if necessary.

### Dental history

To establish the patient's dental history, expectations and attitudes towards their dental health, the maxillofacial surgeon will discuss with the patient their previous experiences and dental history as well as the presenting dental problem. Past methods of pain and anxiety control used will also be explored to establish if anything other than a local anaesthetic needs to be considered. All of these are important as they could be detrimental to effective management. A clinical examination with or without radiographs will provide a picture of the patient's dental health and their motivation in maintaining good oral health.

## Social history

This history is as important as the others, as the maxillofacial surgeon has a duty of care to ensure that the patient will be adequately cared for at home. This is particularly pertinent when the patient is receiving treatment with intravenous, transmucosal or oral sedation. As consent is required for maxillofacial surgery, the maxillofacial surgeon has to be sure the patient is competent to give this; if not, another means of acquiring consent must be found. The cost of maxillofacial surgery has to be deliberated and discussed with the patient in order to determine whether they can afford to proceed or not. If not, other ways of handling their dental care have to be explored.

Chapter 2

# Anatomy of the head, neck and skull

## LEARNING OUTCOMES

At the end of this chapter you should have an understanding and knowledge of:

1. The anatomy of the head, neck and skull.
2. The nerve supply to the teeth and their surrounding structures.
3. The major blood vessels of the head and neck.
4. The salivary glands.
5. The muscles of the head and neck.

## INTRODUCTION

As part of multi-disciplinary team, knowledge of the structures of the head, neck and skull is needed. Along with a basic understanding of conditions and lesions that patients may present within the maxillofacial outpatients department, such knowledge forms an important base for the dental care professional.

## A HEALTHY MOUTH

It is important to understand the presentation of a healthy mouth in order to recognise abnormalities. When the maxillofacial surgeon looks in a patient's mouth they examine the teeth for signs of caries, the gingiva for any indications of periodontal disease and the oral mucosa and tongue to ensure its presentation is normal. In a healthy mouth the teeth should sit firmly in the

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alveolar bone, being attached to it by the periodontal ligaments. The bone and periodontal ligaments are covered by the gingiva lining the alveolar ridge. The gingiva is attached to the neck of the tooth at the junctional epithelium with the gingival crevice being no more than 2 mm. The gingivae is pink in colour, having an orange peel effect with a tight gingival cuff around the tooth. There should be no bleeding on probing and, sub-gingivally, the periodontal ligaments and alveolar bone should be intact. Any examination that highlights disease will be investigated and treated accordingly.

## ANATOMICAL TERMS

In order to describe the position of a structure relative to another, the following terms are often used in dentistry:

- **Anterior** – In front of.
- **Posterior** – Behind.
- **Superior** – Above.
- **Inferior** – Below.
- **Medial** – Towards the mid-line.
- **Lateral** – Away from the mid-line or to one side of.

## ANATOMY OF THE SKULL

The skull (Figures 2.1 and 2.2) has two defined areas: the cranium and facial. There are eight bones that make up the cranium. The single bones are the frontal, occipital, sphenoid and ethmoid and the paired bones are the parietal and temporal.

### Bones of the neurocranium

#### Frontal

Part of the cranium, this single bone forms the forehead, known as the frontal eminences. Within the frontal bone lie the frontal sinuses. The frontal bone consists of many landmark areas such as the supericiliary arches, supraorbital margins, glabella and nasion.

#### Superciliary arch

The area of thickened bone which lies beneath the eyebrows.

#### Supraorbital margins

The area below the supericiliary arches round to the superior area of the orbits.