British Society for Oral and Maxillofacial Pathology, UK: minimum curriculum in oral pathology

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This paper describes a minimum curriculum in oral pathology for undergraduate dental education in the United Kingdom prepared by the Teachers Group of The British Society of Oral and Maxillofacial Pathology. Curricular development in UK dental schools is overseen by the General Dental Council (GDC), the Quality Assurance Agency for Higher Education (QAA) and the European Union. These organisations define the framework for education and learning outcomes but provide little or no detailed guidance on syllabus or curriculum. This recommended minimum curriculum has been drawn up by a consensus process involving teachers of oral pathology from all 13 UK and one Irish dental schools and is cross-referenced to the GDC and QAA published requirements for undergraduate dental education.

Key words: curriculum design; curriculum/standards; core curriculum; oral pathology; oral medicine; oral surgery.

ª Blackwell Munksgaard, 2004
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Dental undergraduate education in the United Kingdom is regulated by the General Dental Council (GDC), the Quality Assurance Agency for Higher Education (QAA) and European law and directives.

The GDC has the primary statutory responsibility for standards of dental education at undergraduate and postgraduate levels under the Dentists Act 1984. The GDC requires that the graduating dentist will able to practise dentistry without supervision within a framework of vocational training and lifelong education, and general professional and specialist training if so desired. The GDC publishes guidance to dental schools The First Five Years - A Framework for Undergraduate Dental Education, currently in its second edition (1) and takes responsibility for ensuring consistency with European law and directives. The framework indicates the minimum programme that the GDC regards as adequate and gives individual schools the responsibility for the details of course structure and curricular initiatives. The GDC does not provide detail of syllabus or curriculum, except in a few specific areas.

The QAA provides benchmark standards for all fields of higher education. These describe the nature and characteristics of degree programmes, the standard of the award and the attributes and capabilities that the new graduate should be able to demonstrate (2, 3). Benchmark statements aid development of new courses and support internal quality assurance and external review. Like the GDC, the QAA does not set a national curriculum but fosters local innovation in curriculum design to meet its threshold standards. The roles of the GDC and QAA overlap, with the GDC the primary authority, and there is cross representation between the GDC and the Benchmark Group for Dentistry.

Requirements of a course in oral pathology

GDC guidelines are expressed as learning outcomes and the concept of integrated subject teaching is promoted. No clear delineation is made between oral medicine, oral pathology and oral microbiology and there are many areas of overlap in which learning outcomes for other subjects require an oral pathology or general pathology component, notably in oral surgery and human disease. GDC general learning outcomes relevant to oral pathology are shown in Table 1.
Learning outcomes are defined for knowledge and understanding, skills and attitudes required on qualification. Specific learning outcomes are defined at three levels as follows.

- **To be competent**, a student should have a sound theoretical knowledge and understanding of the subject together with an adequate clinical experience to be able to resolve clinical problems encountered, independently, or without assistance.

- **To have knowledge of**, students should have a sound theoretical knowledge of the subject, but need only have a limited clinical/practical experience.

- **To be familiar with**, students should have a basic understanding of the subject but need not have direct clinical experience or be expected to carry out procedures independently.

The specific learning outcomes relevant to oral pathology are shown in Table 2.

The QAA Benchmark Statement on Dentistry (3) defines dentistry as a professional clinical discipline concerned with prevention, detection, management and treatment of oral and dental diseases and maintenance of oral and dental health, in individuals and in society. Specific aims relevant to oral pathology are

### TABLE 1. GDC general learning outcomes relevant to oral pathology

<table>
<thead>
<tr>
<th>Cross reference</th>
<th>Subject area</th>
<th>First Five Years section</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Oral surgery</td>
<td>Paragraph 92</td>
<td>The student should have an understanding of the range of surgical procedures which may be used to manage diseases and disorders of the mouth and jaws. ...</td>
</tr>
<tr>
<td>2</td>
<td>Oral medicine</td>
<td>Paragraph 93</td>
<td>It is important to ensure that the dental student is taught the clinical presentation, diagnosis and management of the common diseases of the oral mucosa, of other oral soft tissues, of the salivary glands, of the facial bones and joints as well as the oral manifestations of systemic diseases. The various manifestations of facial pain of both dental and non-dental origin, its diagnosis and management must also be considered</td>
</tr>
<tr>
<td>3</td>
<td>Oral surgery and oral medicine</td>
<td>Paragraph 94</td>
<td>Teaching should include clinical instruction in the prevention, diagnosis and management of potentially malignant and malignant lesions and conditions of the oral mucosa</td>
</tr>
<tr>
<td>4</td>
<td>Oral pathology and oral microbiology</td>
<td>Paragraph 95</td>
<td>The course in oral pathology and oral microbiology should integrate with pathology and medical microbiology. Initially, the processes underlying the common oral diseases and methods of their diagnosis, prevention and management should be described. The teaching should continue through the clinical course and the full range of oral and dental diseases should be considered with particular attention being given to potentially malignant and malignant lesions and conditions of the oral mucosa</td>
</tr>
</tbody>
</table>

### TABLE 2. GDC UK specific learning outcomes relevant to oral pathology (The First Five Years section 111) (1)

<table>
<thead>
<tr>
<th>Cross reference</th>
<th>Subject area</th>
<th>Knowledge level</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Oral pathology and oral microbiology</td>
<td>Have knowledge of</td>
<td>The role of laboratory investigations in diagnosis</td>
</tr>
<tr>
<td>6</td>
<td>Oral surgery</td>
<td>Have knowledge of</td>
<td>The pathogenesis and classification of oral diseases</td>
</tr>
<tr>
<td>7</td>
<td>Oral medicine</td>
<td>Have knowledge of</td>
<td>The aetiology and processes of oral diseases</td>
</tr>
<tr>
<td>8</td>
<td>Oral medicine</td>
<td>Have knowledge of</td>
<td>Matters relating to infection control</td>
</tr>
<tr>
<td>9</td>
<td>Oral surgery</td>
<td>Have knowledge of</td>
<td>The causes and effects of oral diseases needed for their prevention, diagnosis and management</td>
</tr>
<tr>
<td>10</td>
<td>Oral surgery</td>
<td>Be competent at</td>
<td>Undertaking minor soft tissue surgery</td>
</tr>
<tr>
<td>11</td>
<td>Oral medicine</td>
<td>Have knowledge of</td>
<td>The diagnosis of oral cancer and the principles of tumour management</td>
</tr>
<tr>
<td>12</td>
<td>Oral medicine</td>
<td>Be familiar with</td>
<td>The management of acute infection</td>
</tr>
<tr>
<td>13</td>
<td>Oral surgery</td>
<td>Have knowledge of</td>
<td>The drugs commonly used in oral medicine and of their side-effects and drug interactions</td>
</tr>
<tr>
<td>14</td>
<td>Oral medicine</td>
<td>Have knowledge of</td>
<td>Appropriate special investigations and the interpretation of their results</td>
</tr>
<tr>
<td>15</td>
<td>Oral medicine</td>
<td>Be familiar with</td>
<td>The pathogenesis of common oral medical disorders and their treatment</td>
</tr>
<tr>
<td>16</td>
<td>Introduction to clinical dentistry</td>
<td>Be competent at</td>
<td>Obtaining a detailed history of the patient's dental state</td>
</tr>
<tr>
<td>17</td>
<td>Introduction to clinical dentistry</td>
<td>Be competent at</td>
<td>Obtaining a relevant medical history</td>
</tr>
<tr>
<td>18</td>
<td>Introduction to clinical dentistry</td>
<td>Be competent at</td>
<td>Using laboratory and imaging facilities appropriately and efficiently</td>
</tr>
<tr>
<td>19</td>
<td>Introduction to clinical dentistry</td>
<td>Be competent at</td>
<td>Arranging appropriate referrals</td>
</tr>
</tbody>
</table>
TABLE 3. UK QAA benchmark statements relevant to oral pathology (3)

<table>
<thead>
<tr>
<th>Cross reference</th>
<th>Paragraph</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>2.2</td>
<td>Integration of human body systems, normal homeostasis and mechanisms of responses to insults including trauma and disease</td>
</tr>
<tr>
<td>21</td>
<td>2.3</td>
<td>Oral biology, to include detailed knowledge of the form and function of teeth and associated structures, in health and disease</td>
</tr>
<tr>
<td>22</td>
<td>2.5</td>
<td>Human diseases and pathogenic processes, including genetic disorders, and the manifestation of those diseases which are particularly relevant to the practice of dentistry</td>
</tr>
<tr>
<td>23</td>
<td>2.6</td>
<td>Diseases and disorders of the oral cavity and associated structures, their causes and sequelae together with the principles of their prevention, diagnosis and management</td>
</tr>
<tr>
<td>24</td>
<td>2.7</td>
<td>Sources of infection and the means available for infection control</td>
</tr>
<tr>
<td>25</td>
<td>2.9</td>
<td>Communication between dentist and patients, their families and other health professionals and the public in general</td>
</tr>
<tr>
<td>26</td>
<td>2.16</td>
<td>When, how and to whom to refer a patient for specialist advice or treatment</td>
</tr>
<tr>
<td>27</td>
<td>2.19</td>
<td>The broad principles of scientific research and evaluation of evidence that are necessary for an evidence-based approach to dentistry</td>
</tr>
<tr>
<td>3</td>
<td>3.1</td>
<td>Graduating dentists should have the ability to perform the following skills and possess the following attributes</td>
</tr>
<tr>
<td>29</td>
<td>3.5</td>
<td>Describe and understand prevalence of oral diseases in the United Kingdom adult and child populations</td>
</tr>
<tr>
<td>30</td>
<td>3.6</td>
<td>Recognise predisposing and aetiological factors that require intervention to promote oral health</td>
</tr>
<tr>
<td>31</td>
<td>3.7</td>
<td>Apply their knowledge of the aetiology and processes of oral diseases in prevention, diagnosis and treatment</td>
</tr>
<tr>
<td>32</td>
<td>3.8</td>
<td>Obtain and record a relevant medical history which identifies both the possible effects of oral disease on medical well-being and the medical conditions that affect oral health or dental treatment</td>
</tr>
<tr>
<td>33</td>
<td>3.8</td>
<td>Assess and appraise contemporary information on the significance and effect of drugs and other medicaments, taken by the patient, on the dental management</td>
</tr>
<tr>
<td>34</td>
<td>3.8</td>
<td>Obtain a detailed dental history to include chief complaint and history of present illness</td>
</tr>
<tr>
<td>35</td>
<td>3.8</td>
<td>Perform a physical and oral examination to include head and neck, oral hard and soft tissues, vital signs, and recognise disease states and abnormalities including detrimental oral habits</td>
</tr>
<tr>
<td>36</td>
<td>3.11</td>
<td>Recognise common signs and symptoms of orofacial pain, anxiety and apprehension</td>
</tr>
<tr>
<td>37</td>
<td>3.13</td>
<td>Assess patient risk for dental caries and non-bacterial tooth surface loss and be able to provide dietary counselling and nutritional education for the patient relevant to oral health and disease, based upon knowledge of disease patterns and aetiology</td>
</tr>
<tr>
<td>38</td>
<td>3.17</td>
<td>Manage patients with facial pain, disease and disorders of the oral cavity and associated structures, including a recognition of when it is appropriate to refer for specialist help and advice</td>
</tr>
<tr>
<td>39</td>
<td>3.17</td>
<td>Understand the importance of and procedures for submitting specimens for laboratory diagnosis and demonstrate the ability to interpret diagnostic reports</td>
</tr>
<tr>
<td>40</td>
<td>3.21</td>
<td>Recommend and prescribe appropriate pharmaco-therapeutic agents, monitor their effectiveness and safety, and be aware of drug interactions</td>
</tr>
</tbody>
</table>

Students must demonstrate
Systematic understanding of the subject matter (sections 2.2—2.19 above)
Practical understanding of the evidence base of clinical practice and the ability to evaluate new information
The ability to evaluate critically and...assume responsibility for oral health promotion of individual patients and social groups (sections 3.5 and 3.6 above)
The ability to deal with complex issues in diagnosis and planning treatment and...and communicate those decisions to patients and professional colleagues (sections 3.7 and 3.8 above)
Competence in, and comprehensive understanding of, the skills outlined in the statement (sections 3.11—3.21 above)

dispersed between subjects and general headings, such as history, examination and diagnosis, anxiety, pain control and sedation and therapeutics. The benchmarking statements relevant to oral pathology are shown in Table 3.

The generic nature of many of the outcomes and integrated subject structure in both GDC and QAA guidance make identification of specific oral pathology topics difficult. Many learning outcomes and benchmarks listed under other subjects have an oral pathology component, reflecting the fundamental nature of pathology to dentistry. In designing the curriculum that follows, the authors have deliberately considered the broadest range of outcome statements that could be considered relevant to oral pathology.

There is a further source of curricular guidance from the European Union. This does not yet have statutory or any formal status. A European curriculum in oncology for dental students, including elements of basic science, general and oral pathology, was drawn up as part of the ‘Europe against Cancer’ year in 1990 (4). It set up a framework for implementation and
dissemination and listed topics including epidemiology, concepts of neoplasia, development and natural history of cancer, prevention, treatment and research, oral squamous carcinoma and pre-malignant lesions and conditions and other non-squamous malignancies.

More recently, much broader curricular guidance has been compiled by DENTED, the Thematic Network Project Achieving Convergence in Standards of Output of European Dental Education. DENTED provides working papers defining core knowledge and understanding (5), although this contains no specific recommendations for oral pathology, and proposed Competences Required for the Practice of Dentistry in the European Union (6), which includes elements of pathology and oral pathology in generic competences. The Bologna Declaration of 1999 commits the UK to create a comparable and convergent system of graduate and postgraduate dental education across Europe. In the future, EU guidance will shape UK dental curricula but to date, UK oral pathologists have contributed little to the EU process and oral pathology and oral medicine are specialties in which European countries have considerable diversity. A European curriculum is being developed but the imminent enlargement of the EU will bring greater diversity before harmonisation.

Defining the core consensus curriculum

There are 13 undergraduate dental schools in the United Kingdom and each has dedicated oral pathology staff. Oral Pathologists in the UK are defined by their specialist registration with the GDC, based on their role as diagnostic histopathologists. Teaching in pathology and oral pathology, defined in its broadest sense as the study of head and neck disease, may be shared with medical histopathologists, dedicated academic (but not GDC-registered specialist) oral pathology staff, research staff and teachers in other specialties, particularly oral medicine and oral surgery. Local circumstances vary and some schools have no defined course in oral pathology, rather the pathology component is fully integrated into courses with, for example, oral medicine, surgery, radiology and therapeutics.

Local variation in courses and curriculum has, in the past, fostered innovation and diversity. However, The British Society for Oral and Maxillofacial Pathology (BSOMP) Teachers Group initiated definition of a consensus minimum or core curriculum for several reasons. It was believed that teaching of oral pathology is under pressure from the introduction of integrated courses, reduction in academic staff numbers and a temporary shortage of oral pathologists. Similar changes and pressures affecting undergraduate medical courses have led to a reduction in dedicated pathology teaching and concern about the quality of the learning experience (7). However, there has been an increase in integrated subject teaching and one function of this minimum curriculum is to provide external support for staff involved in curricular development for such courses. Similar curricular guidelines exist for pharmacology (8) and as guidance from other UK specialist teachers groups. Similar core curricula exist in the US (9) for pathology (10) and oral pathology for dentistry (11) and professions complementary to dentistry (12, 13). These are much more extensive than this proposal and appear incompatible with the new educational style of medical and dental curricula in the UK, which places emphasis on reducing the requirement for factual knowledge. Their content and validity has been questioned on these grounds (14).

This curriculum was formulated by identifying core topics and common outcomes from the curricula and learning aims of all UK and one Irish (Dublin) oral pathology courses in 2001. A draft was circulated to all BSOMP members, including many members who are not diagnostic histopathologists, for comment. The degree of consensus was extremely high, although style and delivery of teaching varied considerably between schools.

The minimum curriculum

Background

This consensus minimum curriculum has been prepared by the BSOMP Teacher’s Group to provide guidance to members, teachers and course administrators. It describes the scope of a core course considered essential for undergraduate dental courses in the UK. It is not intended that the curriculum be prescriptive and detailed learning aims have been avoided. Teachers are encouraged to define their own curriculum guided by the opportunities and constraints of their own environments. The aim was to derive a consensus minimum from the existing courses of the UK schools.

It is difficult to define the limits of oral pathology at the undergraduate level. Some topics in the curriculum will fall within the teaching remit of teachers in oral medicine, oral surgery, human disease, radiology, general pathology, microbiology and other specialties rather than of pathologists, depending on the individual pathologists’ involvement in clinical care and
clinical teaching. In some schools many or all of the topics listed may be taught as part of other subjects' curricula, in integrated courses with other specialties or in dedicated oral pathology courses but the principle that pathological knowledge underpins these other subject areas should be recognised in course design. Subjects such as caries and plaque-related periodontal diseases may be taught as part of restorative dentistry courses. Duplication of teaching should be avoided.

The most appropriate individuals, regardless of specialty or job title, should deliver the curriculum and they may not all be oral pathologists. However, a pathology component is required in almost all instances and the pathological principles of the listed disorders should be taught or directed by teachers who are clinically qualified and whose main interest is diagnostic or clinical pathology.

The curriculum assumes a basic knowledge of general pathology, including microbiology and human disease. This must include pathological principles and the following processes: the nature and classification of disease, wound healing in soft tissue and bone, inflammation, immunity, microbiology, virology and neoplasia and elements of the pathology of systems. Students should be able to integrate their knowledge of these general principles and mechanisms with the anatomy and physiology of mucosa, bone and salivary gland to gain the maximum understanding.

The level of knowledge and understanding required for each condition varies with its relative incidence and significance for health. After qualification, most students will enter general dental practice. However, the level of detail taught should not be based entirely on the day to day needs of the general dental practitioner. It must take into account the responsibility of practitioners to identify features of rare orofacial diseases, the hospital-based practice of dentistry, general professional training, the scope of postgraduate examinations and the range of postgraduate specialties open to the dental graduate.

For the purposes of curriculum planning, oral pathology is considered to include elements of the following aspects of disease: epidemiology, aetiology, genetics, microbiology and transmission, immunology and innate host defences, pathogenesis, structural changes at the macroscopic and microscopic levels, sequelae, complications and the interrelationship between disease processes, diagnosis, management and prognosis.

No guidance is included as to how topics should be taught; teaching methods will vary between institutions. However, teaching and learning should conform to accepted educational principles and teaching methods should foster self-directed learning and understanding (so called ‘deep’ learning). Integration of subject teaching, problem-based learning and an evidence-based approach are ideally suited to these topics and have the advantage that they encourage effective use of knowledge in the clinical setting. Knowledge of disease should reinforce teaching of history taking, clinical examination, differential diagnosis and the selection and interpretation of investigations, prevention and treatment.

These topics form only a minimum curriculum and it is appreciated that schools may wish to, and often already do, include additional topics as part of their existing undergraduate courses.

Each topic is cross referenced to the relevant GDC and QAA statements in Tables 1—3. Cross references 4–17 define the GDC learning outcome level.

The curriculum

The overall aims of each school’s curriculum should

1. Ensure that dental students develop an understanding of the range of diseases that may present in the oral cavity and associated tissues of the head and neck (2, 4).

2. Ensure that dental students understand pathological principles of the causes, underlying mechanisms and effects of oral disease that are essential for diagnosis and for the development of rational treatment and prevention (2–4, 6, 7, 9).

3. Illustrate how changes in the structure and function of oral tissues relate to the clinical presentation and management of oral disease (5–7, 9).

4. Give an understanding of the histopathological appearance of common oral lesions and the terms used to describe such changes sufficient to assimilate and act on pathology reports in clinical practice (5, 7, 9, 14, 18).

5. Embrace the principles of evidence-based practice when possible (27).

6. Include elements of knowledge, skills and attitudes related to the wider dental curriculum defined by the GDC and QAA.

The syllabus is divided into:

*General topics.*
*Disorders of the teeth.*
*Disorders of the tooth supporting structures.*
*Disorders of the oral mucosa.*
*Disorders of and within facial and jaw bones.*
*Salivary gland disease.*
General topics
The processes of differential diagnosis, principles of history taking, examination, selection and interpretation of investigations for oral and head and neck disease (cross references 2–5, 14, 16–18, 30–36, 39, 40).
Detailed knowledge of biopsy procedures for the mouth (cross references 5, 10, 14, 39).
Principles of biopsy techniques suitable for deep structures of the head and neck (cross references 5, 10, 14, 39).
Specimen handling and interpretation of histology reports and other investigation results (cross references 5, 10, 14, 39).
An appreciation of the relative incidence of lesions and conditions (cross references 4, 29).
Correct definition, use and spelling of medical and pathological terms (cross references 25, 28).

Disorders of the teeth
Cross references 2, 6, 7, 9, 14, 16, 18, 21–23, 29, 31–37.
Developmental disorders of the teeth.
- Missing and supernumerary teeth, morphological variations.
- Amelogenesis imperfecta, hereditary opalescent dentine and dentinogenesis imperfecta.
- Chronological hypoplasia and fluorosis.
- Resorption and hypercementosis.
- Delayed eruption and accelerated tooth loss.
Dental caries
- Enamel, dentine and root caries including caries in deciduous teeth, aetiology, pathogenesis and structural changes in enamel, dentine and cementum.
Pulpitis and pulpal reactions to damage
Apical periodontitis and the sequelae of pulp necrosis or pulp removal
- Periapical granuloma.
- Radicular cyst.
- Dento-alveolar abscess and spread of infection.
Tooth wear and the processes of attrition, abrasion and erosion.

Disorders of the tooth supporting structures
Cross references 2, 4–7, 9, 11, 13–18, 21–23, 29–36.
Plaque-related gingivitis, periodontitis and their variants
- Classification, aetiology, pathogenesis and structural changes.
Acute ulcerative gingivitis
Periodontal abscess
Pericoronitis
Causes of localised and generalised gingival enlargement.

Disorders of the oral mucosa
Cross references 2–9, 11–24, 26, 29–36, 38–40.
Genetic conditions
- White sponge naeuvus.
Hyperplasias
- Fibrous epulis.
- Fibro-epithelial hyperplasia.
- Pyogenic granuloma.
- Peripheral giant cell granuloma.
- Squamous papilloma.
Inflammatory disorders
- Traumatic injury including, mechanical, chemical exposure and thermal.
- Radiation exposure and the effects of radiation on tissues.
Local and systemic infections
- Bacterial
  (i) Infection of dental origin
    (a) Abscess
    (b) Cellulitis
  (ii) Tuberculosis
  (iii) Actinomycosis
- Viral
  (i) Primary and recurrent herpes simplex infection
  (ii) Herpes zoster infection
  (iii) Herpangina and hand foot and mouth disease
  (iv) Epstein–Barr virus infection and its sequelae
- Fungal
  (i) Candidosis
- Local and systemic immunopathogenic conditions
  (i) Recurrent oral ulceration
  (ii) Behcet’s disease
  (iii) Lichen planus and lichenoid reactions
  (iv) Lupus erythematosus
(v) Vesiculobullous conditions
  (a) Pemphigus
  (b) Pemphigoid
  (c) Erythema multiforme
  (d) Angina bullosa haemorrhagica
(vi) HIV infection and its sequelae
- Local and systemic granulomatous conditions NOS
  (i) Crohn’s disease
  (ii) Orofacial granulomatosis
  (iii) Foreign body reactions
  (iv) Sarcoidosis
- Keratoses and white lesions NOS
  (i) Frictional and reactive keratoses
  (ii) Idiopathic lesions, ‘leukoplakia’
• Oral mucosal pigmentation
  (i) Racial pigmentation
  (ii) Melanotic macules
  (iii) Melanocytic naevi
  (iv) Peutz–Jegher disease
  (v) Addison’s disease
  (vi) Amalgam tattoo
  (vii) Melanoma
• Oral squamous carcinoma
  (i) Pre-malignancy
    (a) Concept of pre-malignancy
    (b) Pre-malignant lesions and conditions
    (c) Epithelial dysplasia
    (d) Factors potentiating malignant change
  (ii) Oral squamous cell carcinoma
    (a) Epidemiology
    (b) Aetiology
    (c) Histopathology
    (d) Patterns of spread
    (e) Factors affecting prognosis and management
    (f) Prevention
• Other malignancy
  (i) Lymphoma/leukaemia
  (ii) Basal cell carcinoma

Disorders of facial bones and jaws
Cross references 2–7, 9, 11, 12, 14–23, 26, 29–36, 38–40.
Developmental conditions
• Tori
• Cleft palate
• Cleidocranial dysplasia
Inflammatory disorders
• Osteomyelitis of the jaws and osteoradionecrosis
• Healing fracture and tooth socket
• Dry socket
Cystic and cyst-like lesions
• Classification of jaw cysts
• Odontogenic cysts
  (i) Radicular cyst
  (ii) Paradental cyst
  (iii) Dentigerous cyst
  (iv) Keratinising cystic odontogenic tumour (odontogenic keratocyst) and basal cell naevus syndrome (Gorlin syndrome)
• Non-odontogenic cysts
  (i) Incisive canal cyst
  (ii) Solitary bone cyst
  (iii) Aneurysmal bone cyst
  (iv) Stafne/idiopathic bone cavity
• Soft tissue cysts, dermoid, branchial and thyroglossal

Odontogenic tumours
• Principles of classification and the range of odontogenic tumours
• Odontomes
• Ameloblastoma
• Cementoblastoma
Giant cell and other lesions of bone
• Central giant cell granuloma and hyperparathyroidism (brown tumour)
• Paget’s disease
• Langerhans cell histiocytosis

Fibro-osseous lesions
• Fibrous dysplasia
• Ossifying fibroma (cemento-ossifying fibroma)
• Osseous dysplasias (cemento-osseous dysplasias)
Disorders of the temporomandibular joint and masticatory apparatus
• Myofascial pain dysfunction syndrome

Bone neoplasms
• Osteoma including Gardner’s syndrome
• Osteosarcoma
• Metastatic neoplasms to the jaws

Salivary gland disease
Cross references 2–7, 9, 11, 12, 14–20, 22, 23, 26, 29, 30–33, 35, 37, 39, 40.
Developmental disorders
Mucocele
• Mucous extravasation cyst
• Mucous retention cyst
Sialolithiasis, obstruction and chronic sialadenitis
Infections
• Mumps
• Acute and chronic bacterial sialadenitis
Disturbances of salivation
• Xerostomia
  – causes
  – Sjögren’s syndrome
  – Radiotherapy-induced salivary gland atrophy
• Ptyalism/sialorrhoea
Salivary neoplasms
• Principles of classification and the range of salivary neoplasms
• Pleomorphic adenoma
• Warthin’s tumour
• Mucoepidermoid carcinoma
• Polymorphous low-grade adenocarcinoma
• Adenoid cystic carcinoma
• Carcinoma ex pleomorphic adenoma.
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