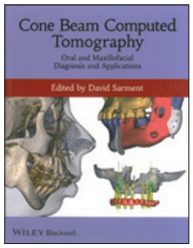
BOOK REVIEW



CONE BEAM COMPUTED TOMOGRAPHY: ORAL AND MAXILLOFACIAL DIAGNOSIS AND APPLICATIONS

D. Sarment (ed)
Wiley-Blackwell
price £82.99; pp 296
ISBN 9780470961407

The last two decades have seen an increasing importance placed on cone beam computed tomography (CBCT) in diagnosis and treatment planning. The more recent introduction of CBCT scanners in dental practices makes this an important area of X-ray radiology for dental professionals to be aware of. This text is edited by periodontist and implantologist David Sarment with contributions from 22 medical, dental and dual qualified practitioners. It is structured into 11 chapters and each is fully supported by a strong evidence base.

Chapter one introduces the reader to the physical science underpinning CBCT systems. This foundation ranges from the production of X-rays to the computerised re-adjustment and calibration of images. As a practitioner it is important to understand both the benefits and risks associated with CBCT exposure and this is highlighted in Chapter two. There is sound appreciation of the nature of ionising radiation, exposure times, field of view and rotation angles. I can remember the difficulty in getting to grips with this subject area at dental school; however, this refresher is provided in an easy to understand format. The biological effects of ionising radiation, both deterministic and stochastic are also stressed. A practical section presenting methods to minimise the radiation dose is compliant with *Ionising radiation (medical exposure) regulations* 2000.

What makes this book different from other titles on the market is the fact that it is applicable to both the maxillofacial surgeon but also the general dental practitioner. Chapters on maxillofacial pathologies and orthognathic surgery are useful for both surgical and orthodontic colleagues. For the specialist and general dentist, there are dedicated chapters for the beneficial use of CBCT in orthodontics, endodontics and periodontics. Chapter eight on CAD/CAM surgical guidance provides a case study-based discussion on the use of surgical guide planes to plan implant placement: a joint surgical and restorative approach to treatment planning is supported by 184 high quality clinical and radiological images.

As a hospital core trainee with rotations in maxillofacial surgery and dentistry; this book is a useful companion for providing guidance when determining the indications and uses of CBCT. The fact that it is a straightforward read combined with a fully evidence-based approach makes this text easy to recommend to surgical and dental colleagues within the primary and secondary sectors.

M. BASATI

DOGS MAY AID UNDERSTANDING OF CLEFT PALATE

US researchers have identified the genetic mutation responsible for a form of cleft palate in the dog breed Nova Scotia Duck Tolling Retrievers.[1]

They hope that the discovery, which provides the first dog model for the craniofacial defect, will lead to a better understanding of cleft palate in humans.

By conducting a genome-wide study of these particular retrievers with a naturally occurring cleft palate, researchers identified a mutation responsible for the development of cleft palate in the breed. Dogs with this mutation also have a shortened lower jaw, similar to humans who have Pierre Robin Sequence. The disorder, a subset of cleft palate, affects one in 8,500 live human births and is characterised by a cleft palate, shortened lower jaw and displacement of the tongue base.

The findings are online at https://tinyurl.com/knr8wb3.

1. Wolf Z T, Leslie E J, Arzi B *et al.* A LINE-1 insertion in DLX6 is responsible for cleft palate and mandibular abnormalities in a canine model of Pierre Robin Sequence. *PLoS Genet* 2014; **10:** e1004257.

SCAFFOLDING INVENTED FOR MISSING TEETH

A new invention from Norway helps the body generate new bone and could be used to treat patients with loose teeth or mandibles damaged by cancer, infections or accidents.

Members of the Faculty of Dentistry at the University of Oslo have created artificial, foam-rubber-shaped 'scaffolding' that aids the body in repairing itself. The material is made from water and ceramic powder poured through ultrapure foam rubber designed to look like trabecular bone then heated until it ligates into one solid structure.

Using the new method, dentists will be able to insert artificial scaffolding between bone fragments, determining where new bone tissue will grow.

Research Dean Ståle Petter Lyngstadaas said: 'The artificial scaffolding is as strong as real bone and yet porous enough for bone tissue and blood vessels to grow into it and work as a reinforcement for the new bone'.

With major defects, stem cells can be taken from the patient and inserted into the scaffolding, causing the process to accelerate. The surrounding bone tissue must be healthy with an ample blood supply to the surgery site.

The Norwegian dentists have tested the new method successfully on rabbits, pigs and dogs. In 2014 they hope to undertake clinical studies on patients with periodontitis and damage to the mandibular bone. They also hope to attract the interest of orthopaedists.

For further details visit www.apollon.uio.no/english/articles/2014/dentistry.html

Ståle Petter Lyngstadaas and Håvard Jostein Haugen, the Norwegian inventors of bone scaffolding