opinion
gender
Prevention of failures in oral implantology

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Intra-oral and panoramic images are not 3-D and clinicians can obtain only vague measurements from them owing to magnification changes due to positioning. In addition, they are not efficient for viewing certain pathologies. In response to these limitations, CBCT 3-D imaging technologies were developed. CBCT 3-D captures a volume of data and, through a reconstruction process, it delivers images that do not contain magnification, distortion and/or overlapping anatomy.

In recent years, CBCT 3-D has begun to make significant inroads into every discipline in our dental profession, expanding the horizons of clinical dental practice by adding a third dimension to cranio-facial treatment planning. CBCT uses advanced 3-D technology to provide the most complete anatomical information on a patient’s mouth, face and jaws areas, leading to enhanced treatment planning and predictable treatment outcomes.

Essentially, this represents a paradigm shift, where measurements and anatomical relationships are precise and provide practitioners with a clear understanding of their patients’ anatomical relationships. According to dental practitioners using this technology, it helps them perform treatment more efficiently.

Regarding oral implantology, it is estimated that growth in implant-based dental reconstru-
tion products will outstrip all other areas of
dentistry, according to Kalorama Information. The traditional method of replacing a tooth with
a dental bridge has been shown to be problem-
atic, and more permanent solutions are urgently
needed.

With a rapidly ageing population in the devel-
oped world and the resulting enormous need for
dental restoration, a large number of companies
have seen the opportunity to adopt these sophis-
ticated dental techniques. And indeed, as some
have predicted, the growth in dental implant-
based procedures has increased considerably in
recent years.

As a result, there has been a rapid increase in
the number of practitioners involved in implant
placement, including specialists and generalists,
with different levels of expertise. At the same
time, a number of unusual complications asso-
ciated with these procedures have arisen.

A literature and web search revealed several
published reports of such complications, which
include implant fractures (Fig. 1), impingement
on adjacent teeth (Fig. 2), perforation of the lin-
gual undercut (Fig. 3), sinus perforations (Fig. 4)
and implants displaced into the maxillary sinus
(Fig. 5).

The clinical management associated with
some of these complications is difficult at times
and considered very invasive. Therefore, while
the quantitative relationship between successful
outcomes in dental implant treatment and CBCT-
based dental imaging is unknown and awaits
discovery through large prospective clinical trials,
I strongly believe that using CBCT- and 3-D-based
dental imaging is becoming a reliable procedure
from a precautionary standpoint based on a series
of recent preliminary clinical studies and case
reports.

I also strongly believe that by taking 3-D CBCT
images prior to placing dental implants, many
of the above-mentioned complications can be
circumvented._

Editorial note: Dr Almog’s presentation, Introduction to
CBCT, especially as it pertains to prevention of failures
in oral implantology, at the Dental Tribune Study Club
Symposia at Greater New York Dental Meeting 2010 is
available online at www.DTStudyClub.com.

Reference
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_about the author
Dr Dov Almog is a
Prosthodontist with more than
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In 2003, in acknowledgment of his research on
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