The ability to examine the craniofacial anatomy with help of three-dimensional images obtained through Cone Beam Computerized Tomography (CBCT) has been praised as the new gold standard in oral surgery. CAD/CAM recently had the opportunity to speak with Prof. Stefan Haßfeld from the University of Dortmund’s Department of Oral and Cranio-Maxillofacial Surgery in Germany about the technology and its future potential at the FDI Annual World Dental Congress in Hong Kong.

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CAD/CAM: Prof. Haßfeld, in your opinion, has CBCT become a standard in dentistry?

Prof. Stefan Haßfeld: CBCT has been available in dentistry for over a decade and since then has been established as a standard for many indications. Despite this development, I doubt that the technology will make traditional imaging obsolete any time soon. Instead, it will be used as an aid in more complex treatments.

One of the areas in which CBCT is used is implant treatment planning. What are the other main areas of application?

Nowadays, the technology is widely used in complex oral and maxillofacial surgery procedures. For example, we regularly examine large cysts and deeply impacted third molars with CBCT.

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"In many cases, we expect a significant reduction in operative risks and an improvement in surgical planning."

Its use can also be of benefit for the diagnosis of maxillary sinus diseases, as well as in traumatology or the correction of anomalies and dysgnathias.

What potential does the technology offer regarding the improvement of treatment outcomes?

In contrast to traditional imaging, CBCT allows the human autonomy and pathology to be assessed in detail in 3-D space. This can be extremely helpful for treatment planning and the assessment of regions that present a surgical risk, like adjacent nerves, teeth or blood vessels. In many cases, we expect a significant reduction in operative risks and an improvement in surgical planning.

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According to the industry, the radiation dose for patients is significantly lower with CBCT. Do you agree with this statement?

I would have to disagree, since compared with traditional imaging, CBCT usually has a higher radiation dose. However, it also yields completely different information. By taking a high number of single images from different angles, CBCT can provide lower radiation doses only in a few exceptional cases.

Is this the only drawback compared with traditional imaging techniques?

As CBCT has another field of indications, comparison with traditional imaging techniques is not appropriate. However, there are indeed some shortcomings, like higher radiation doses and costs, as well as a lower resolution compared with dental film.

What role will CBCT play in dental practices in the future?

CBCT will take root in dental practices, particularly in those with emphasis on surgery, when it comes to certain complex treatment issues. For all the mentioned reasons, traditional imaging methods will not disappear.

A panoramic X-ray image, for example, provides an excellent overview of the entire jaw arch for clinically oriented examinations, with only little effort and at a small radiation dose. Dental film still offers the highest resolution for viewing details. Rather, the establishment of CBCT for dental imaging offers us additional options for daily practice.

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Thank you very much for this interview.