Carestream DENTAL

CASE STUDY

AI Insights

Dr. Kunal Shah has integrated artificial intelligence into his digital radiography workflow through AI Insights, paving the way for the future of dentistry.

Today, within the field of dentistry, a wide array of tools helps dental professionals deliver exceptional care to their patients. The integration of digital workflows has become a significant aspect of daily practice, and the role of artificial intelligence (AI) is enhancing the efficiency of dental technologies. Dr Kunal Shah, a London-based general dentist, and implantologist, acknowledges the role of AI in the future of dentistry and its significance for a seamless integration into routine digital workflows.

How has AI enhanced patient care

Dr. Shah has been using AI Insights to enhance diagnostic support. In every patient examination, digital solutions play a crucial role in devising necessary treatment plans. Patients routinely undergo digital intraoral imaging, as well as scans with an intraoral scanner, followed up by a digital orthopantomogram (OPG), where appropriate. Dr Shah quickly recognised the advantages of incorporating AI-driven software as a second opinion or to validate his clinical evaluation of the radiograph. Using predetermined algorithms, the software assesses digital panoramic images and reports on pathologic findings; detections include crowns, implants, fillings, apical lesions and caries. AI Insights offers assurance that all relevant findings from the radiograph have been identified, ensuring peace of mind and bolstering medicolegal protection. This latter aspect is becoming increasingly critical, as AI Insights reporting serves as an additional layer of assessment for patients, offering enhanced protection for both the dentist and the patient.

Dr. Shah guides his patients through the AI-generated report of radiographic images, solidifying his patients' trust in his professional judgement. Patients have expressed appreciation of treatment decisions presented with both clinical experience and indications confirmed by technology. Being able to explain the rationale behind treatment recommendations using objective tools helps to avoid misconceptions by patients and increases treatment acceptance.

Case #1

A 36-year-old female patient, in good health, presented with discomfort in her lower arch. The standard diagnostic protocol was carried out, revealing a DO lesion in the LR6 necessitating restorative treatment. It's worth noting that she had a previous unpleasant experience with UL5, so she was considering her options to restore the missing UL5 through potential implant placement. An OPG with an AI-generated report was recommended, highlighting three key findings:

1. The LR6 tooth required restoration, as confirmed by the identified lesion.
2. The UR6 tooth remained stable, having undergone root canal treatment more than a decade ago. The patient was informed of the apical lesion, aware of the risks but opted not to treat.
3. The bone structure in the UL5 region appeared conducive to implant placement, although confirmation and detailed treatment planning would require a cone-beam computed tomography (CBCT) scan if the patient decides to pursue this procedure.

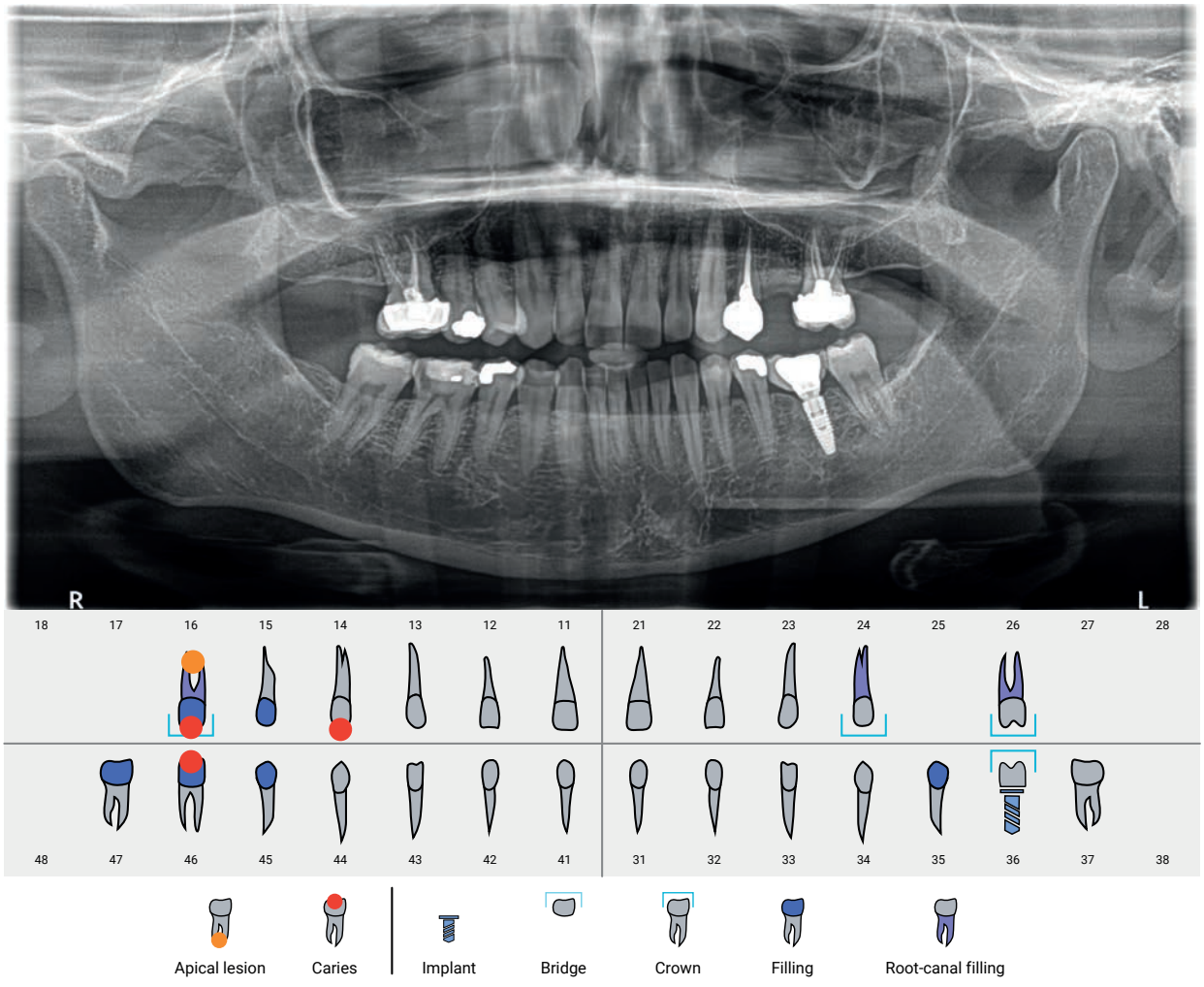

Image: Case #1

Case #2

This patient presented with multiple lesions and a previous negative experience with receiving dental treatment, causing them to feel anxious about seeking clinical care. They were, however, experiencing significant discomfort. After conducting the standard diagnostic assessment, an OPG was taken, and an AI Insights report generated. This report was shared with the patient, the implications were explained, and it was confirmed to align with my initial diagnosis. The patient was given time to review and digest the information at their own pace. Upon their return to the practice, they expressed readiness to proceed with the necessary restorative treatment. Notably, the UR6 remained untreated, which was indicated for extraction as the next step of the treatment plan.

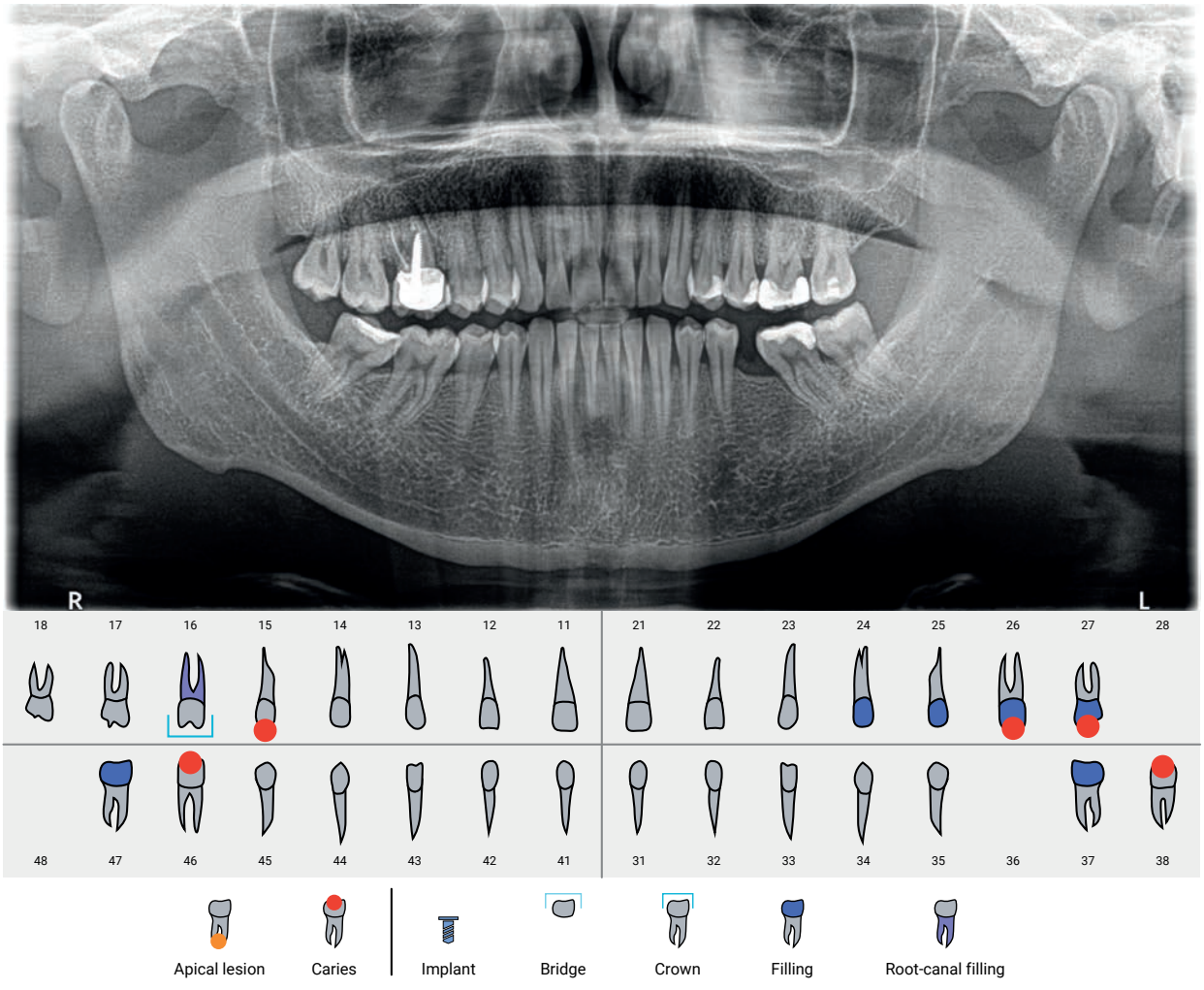

Image: Case #2

Case #3

A female patient presented after a fall with significant facial injuries. She was deeply concerned about potential damage to her teeth. Despite conducting the usual vitality tests and diagnostics evaluations, her worries persisted. An OPG was taken, and an AI Insights report generated. The absence of any lesions or fractures was confirmed by the report, providing objective reassurance to the patient that her teeth were indeed in good condition. At her routine examination appointment six months later, no issues were reported, and the absence of any dental problems was confirmed by a clinical assessment.

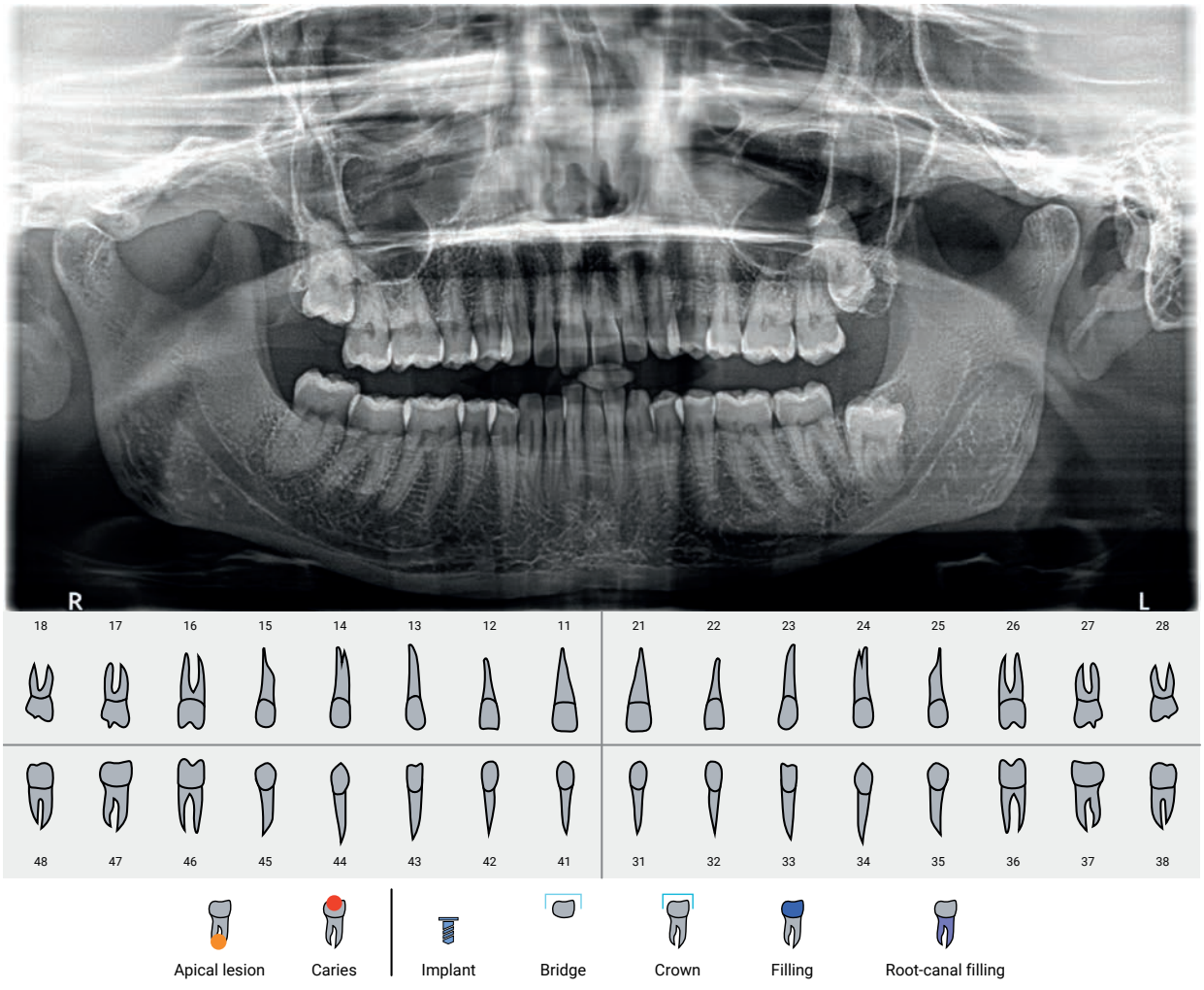

Image: Case #3

Dr Shah summarises the advantages of AI radiology diagnosis using AI Insights

As demonstrated in these case examples, AI-assisted images that highlight issues can serve as an effective tool for patient communication. The colour-coded visual cues for dental findings appear to enhance patients' comprehension of their oral health conditions and the rationale behind specific dental procedures. This serves as a valuable conversation starter, providing patients with a tangible visual aid to initiate questions and discussions. Consequently, this facilitates the acquisition of informed consent, building both documentation processes and trust between patient and practitioner.

In summary, the integration of AI Insights from Carestream Dental into my existing workflow has been seamless. It coexists with my regular imaging technologies and flawlessly interacts with CS Imaging version 8 software, ensuring all patient data remains consolidated. It offers an invaluable supplementary tool for diagnostics and instils confidence in patients across a spectrum of clinical scenarios.

Dr Kunal Shah, BDS PGCE Den Ed PGCE CUBS

Dr Kunal Shah, BDS PGCE, principal of LeoDental in London, strives to provide excellence in his dentistry. An early adopter of digital technologies, his patients benefit in his keen interest in the latest solutions.

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