

# Extra-oral dental radiography for disaster victims using a flat panel X-ray detector and a hand-held X-ray generator

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## ABSTRACT

Forensic odontologists outside Japan incise the skin for post mortem dental examinations when it is difficult to open the victim's mouth. However, it is prohibited by law to damage dead bodies without a permit in Japan. Therefore, we developed extra-oral dental radiography using digital X-ray equipment with rechargeable batteries to overcome this restriction.

**Materials & Methods** A phantom was placed in the prone position on a table, and 'lateral oblique radiograph' for posterior teeth and 'contact radiograph' for anterior teeth, a total of three images per case, were taken using a flat panel X-ray detector (FPD) and a hand-held X-ray generator. The resolving power of the images was measured by a resolution test chart, and the dose of scattered X-rays was measured by an ionization chamber type survey meter.

**Results and Discussion** The resolving power of the FPD was 3.0 lp/mm, which was less than that of intra-oral dental methods, but the image quality of these extra-oral radiographs was adequate enough to compare them with the ante-mortem radiographs. The higher dose of scattered X-rays was laterally distributed, but the dose per case was much less than that of intra-oral dental radiographs. In conclusion, extra-oral radiography is available for disaster victim identification by dental methods even if performed at a disaster scene without electricity and water.