

Radiography in dentistry

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Abstract :

Dental radiography is one of the most important diagnostic procedures required in dental clinics. In fact, the radiologist uses low levels of radiation to visualize the inner parts of the mouth, such as the teeth and gums. The reason for requesting this procedure is to try to detect oral lesions or to monitor the teeth after implants, and so on.

The grain size and texture can be adjusted to affect the properties of the film, for example to improve the resolution of the developed image. When the film is irradiated, the halide ionizes and the free electrons are trapped in crystal defects (forming a latent image). Silver ions are attracted to these defects and dip, creating clusters of transparent silver atoms.

Keyword :- Radiography , Xray film , Dentil Xray

التصوير الاشعاعي في طب الاسنان

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مستخلص:

يعد التصوير الشعاعي للأسنان من أهم الإجراءات التشخيصية المطلوبة في عيادات الأسنان. في الواقع يستخدم أخصائي الأشعة مستويات منخفضة من الإشعاع لتصوير الأجزاء الداخلية من الفم، مثل الأسنان واللثة. سبب طلب هذا الإجراء هو محاولة الكشف عن آفات الفم أو مراقبة الأسنان بعد الزرع، وما إلى ذلك.

يمكن تعديل حجم الحبوب والملمس للتأثير على خصائص الفيلم، على سبيل المثال لتحسين دقة الصورة المطورة. عندما يتم تشعيع الفيلم، يتأين الهاليد وتحتبس الإلكترونات الحرة في عيوب بلورية (تشكل صورة كامنة). تنجذب أيونات الفضة إلى هذه العيوب، مما يخلق مجموعات من ذرات الفضة الشفافة.

الكلمات المفتاحية: التصوير الاشعاعي ، أفلام الاشعة السينية ، الاشعة السينية للأسنان.

Introduction

All inhabitants of the Earth, including fetuses, are exposed to radiation from nature, the surrounding environment, and medical sources on a daily basis^[1]. Dental X-rays are also a source of radiation that an individual may be exposed to during his life^[2].

In this article, we will talk about the reasons for x-rays in dentistry, and ways to protect yourself from these rays^[3].

What is dental radiography?

It is one of the tests used in dentistry as an aid in diagnosing various dental and oral lesions^[4].

The x-ray image is produced by using x-rays - x-rays - the principle of which depends on the presence of a contrast in the density of different parts of the body, as it reveals well the bones because of its high density compared to other nearby parts such as fat, skin and muscles. This difference in density makes the rays penetrate each of them differently from the other^[5].

Finally, the rays reach a receiver-detector-called “film” that changes color according to the amount of rays reaching it, giving a fairly accurate reflec-

tion of the bone or tooth that the rays passed through^[5].

Radiation risks in dentistry

The amount of radiation that an individual is exposed to from x-rays in various dental specialties is small, so there is no objection to using them when necessary^[6].

Indications for the use of x-rays in dentistry

• Diagnostic utility

To diagnose oral lesions of all kinds, such as caries, as the most popular use of x-rays in dentistry is to investigate caries, especially those hidden on the lateral surfaces of the teeth^[7].

It also helps in detecting the severity of periodontal infections and their degree of vulnerability^[7].

It also helps in the diagnosis of bone resorption, tumors, cysts, and periapical lesions - that is, around the root -.

- Examination of congenital abnormalities in the teeth.
- Evaluation of teeth after an injury.
- Before an operation or dental procedure
- Evaluation of the development or regression of a disease or the eruption of a particular tooth.

- Detecting the presence of impacted teeth (such as wisdom mills) [8].
- Before tooth extraction, to assess the position and shape of the tooth and how close it is to any important parts^[5].
- Before implementing an orthodontic treatment plan: Knowing the type of occlusion and the structural relationship between the jaws^[9].
- During nerve treatment sessions: to ensure the correct lengths of the root canals before starting to clean them, as well as the consistency of the nerve fillings with the dimensions of the canals^[10].

Types of x-rays used in dentistry

We mention some of them:

- Pictures of the inside of the mouth
They are of small dimensions (such as 3 cm x 3 cm), and they target a specific tooth or a small group of teeth^[10].
- Panorama
It is a commonly used dental cross-section, and gives an excellent idea of most teeth and jaws.
- Computed tomography.
- Side photos of the head^[11].
- Methods of protection from radiation in dentistry.
- Most dental clinics have methods of

protection from radiation, including:

- A protective collar for the thyroid gland^[12].

The thyroid gland, especially in children, and because of its close location to the oral cavity, is highly susceptible to radiation. Therefore, it is recommended to use a thyroid shield called a collar^[13].

Body protectors.

It is a shield whose shape resembles a baby's apron, covering the chest and abdomen all the way to the pelvis to protect the vital organs, especially the reproductive organs. Since they contain the sexual stem cells responsible for fertility and reproduction, it is necessary to use them in pregnant women to reduce the radiation dose to the fetus as much as possible^[14].

These condoms are checked periodically to ensure that there are no clear tears or cracks in them, and the patient can ensure their safety before use^[15].

modern techniques.

Many dental clinics provide modern imaging techniques such as digital imaging instead of traditional imaging, which gives clearer accuracy in x-ray images with a lower radiation dose^[16].

The role of the patient in reducing the radiation dose

- Adhere to the instructions of the dentist.
- a. Not moving or shifting the film placed inside the mouth with the tongue or cheeks so that the image does not need to be repeated^[17].
- B. Ensure that the film is stable in the mouth before taking the x-ray, otherwise tell the doctor to make the appropriate adjustment.
- Not to take X-rays without necessity^[17].

It is not recommended to take any x-rays - before visiting the dentist - in order to save time, as the x-rays should be done based on the conclusions reached by the doctor after the clinical examination of the teeth and at his request^[18].

• Bring previous x-rays.

In the event of dealing with a new dentist to complete or start a new treatment, the previous dentist can be contacted to take x-rays, in order to avoid repeating some x-rays unnecessarily^[19].

• Preparing for a pre-radiograph.

When visiting the dentist and anticipating the need for X-rays, remove any metal pieces or jewelry in the head and

neck area such as earrings, pins, hair ties containing metal, as well as earphones, as all of them may affect the quality of the images, especially panoramic images, which require re-conducting and exposure. Again for rays^[19].

Finally, dental x-rays are useful images for diagnosing bone and dental problems, in addition to using them before dental procedures. The doses exposed to dental imaging are few and safe, but this does not preclude taking protective measures and preventing them from harming them^[20].

Conclusions

- Identify fractures or infections in the teeth.
- Diagnosis and assessment of the structure of the oral cavity and jaw^[20].
- Capturing signs of changes after dental implants.
- Detection of tumors on the bones.
- Tooth densitometry to diagnose tooth fragility^[20].

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