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What is X-Ray?

診斷及介入放射部
Department of Diagnostic & Interventional Radiology

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What Is X-Ray

Indubitably, many patients would like to know what is X-Ray. In this pamphlet, we would like to explain what X-ray is and what it is used for. Hopefully this will help you understand what you will be experiencing.

X-Ray was discovered in 1895. It is an electromagnetic radiation with a very short wavelength, measured in pilometers. It is beyond the range of human vision. It is produced by firing an electron on a metallic target usually made of tungsten.

X-Ray has been used widely in medical imaging because of its ability to pentrate many materials. The degree of penetration depends on the density of the specific material. As the human body has different densities, such as soft tissue and bone, the X-Ray passing through the body will produce a spectrum of grays on a photosensitive film forming an image (picture). This image will aid in the diagnosis of the medical problem and proper treatment can be prescribed. The more common use of X-Ray is in detection of fractures and chest problems. Recently, X-Ray has been utilized in minimal invasive surgery (interventional radiology).

For the examination of the digestive system, such as the large bowel, patient may be required to take laxatives to clean out the bowel. For X-Ray of the stomach and small bowel, patient will need to fast overnight. Any residual food material will hinder the accuracy of the examination.

In other examinations, such as intravenous pyelogram, the radiologist will inject contrast into the vein to show up the kidneys and collecting systems.

Is X-Ray Safe?

The X-Ray dosage in diagnostic procedures is far below the dosage that will cause damage. As a safety precaution, the radiographer will often use lead sheet to shield the gonads of children and adults of the reproductive age. The gonadal shield will limit the amount of external scattered radiation.

For those who have to assist the patient during a X-Ray examination, a lead apron will be provided.

To prevent the young fetus from exposed to unnecessary radiation, the radiographer will often ask a woman in child bearing age her last menstrual period. Generally, 28 days from the begining of the last menstural period is considered safe period for most X-ray exams.

For high dose procedure, involving direct irradation of the genitals, the 10-day rule applies.

Services

Besides radiographs, such as the chest, abdomen and bones , other examinations are also available. These include fluoroscopy, computed tomography, ultrasound, angiography, intravenous urography, mammography, bone mineral densitometry and magnetic resonance imaging.

If you would like to know more about these services, please refer to the other pamphlets.

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查詢或預約，歡迎聯絡我們

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X光是甚麼？

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X光是甚麼?

相信很多病人對X光都存著不少疑問，我們希望可以透過這份單張，幫助大家了解X光檢查的過程，減少病人的憂慮，及促進病人與放射科人員在檢查過程中，能互相衷誠合作。

X光是一種帶有能量的電磁波或輻射。它的波長只有一億萬份之一厘米，肉眼是看不見的。當高速移動的電子撞擊任何形態的物質時，X光便有可能產生。

自從X光在1895年被發現後，醫學界便廣泛利用它作診斷用途。X光擁有能穿透物質的特性，相同的X光能量，對於不同密度的物質，有不同的穿透能力。因為人體的器官及骨骼有著不同的密度，當X光投射及穿透人體某個部位後，便能在菲林（X光片）上造成深淺不同的影像。這些影像對於病症診斷有很大的幫助，最常見的檢查是應用於診斷骨折（fracture）及肺部的疾病上。近年，一些介入性（interventional）而有治療作用的X光檢查，也很普遍。

例如小腸灌腸造影（small bowel enema）及鋇灌腸造影（Barium enema）等消化系統的檢查，便需要病人作特別的準備。在小腸灌腸造影前的指定時間內，病人需要禁食;又或在鋇灌腸造影前，病人便要服食瀉藥及洗腸。否則，消化系統內不必要的物質（例如未經完全消化的食物或糞便），會造成妨礙診斷的影像，影響醫生的判斷。

此外，在某些檢查中。例如靜脈注射泌尿系統造影（intravenous urography)，醫生會經靜脈注射造影劑（contrast medium) 到病人體內，以便仔細分辨不同的的身體組織。

X光檢查是否安全?

本數據顯示，病人在一般的X光檢查中所接受的輻射劑量是極之微少的，對身體造成傷害的機會很低。另外，放射技師在適當情形下，亦會利用鉛片(leadsheet)或性腺屏蔽(gonadshield)覆蓋著病人之生殖器官，以減低病人所接受的散射輻射(scattered radiation)。

協助病人照X光的人士都會有鉛圍裙（lead apron)穿著，以作保護。X光或有可能對胎兒造成不良影響，所以凡有機會懷孕的婦女，放射技師都會問及她們最近一次來經的時間，以確保她們接受有關的X光檢查是安全的。

大部份X光檢查都以「28日制」作指標來判斷婦女是否適合進行。根據「28日制」，婦女來經後的28天內可以接受X光檢查。

在某些較高劑量或對盆腔直接照射之檢查，我們會用「10日制」作指標。

本部提供之服務

除照肺、腹部、頭骨、四肢骨骼等之外，亦有其他診斷服務，包括透視檢查(fluoroscopy)、電腦掃描(computed tomography)、超聲波掃描(ultrasound scan)、血管造影(angiography)、靜脈注射泌尿系統造影(intravenous urography)、乳房造影(mammography)；骨質疏鬆症檢查(bone mineral densisometry)及磁力共振掃描(magnetic resonance imaging）。

閣下如欲進一步了解本部門，請參閱其他單張。