



# 揭開X光的神秘面紗

朱昭穎醫生知道很多癌症小孩都害怕接受X光檢查，為了減輕大家的不安情緒，便向我們簡單介紹各種X光檢查的功能。

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## 普通X光

X光是一種帶有能量的電磁波或輻射，擁有能穿透物質的特性。因為人體



普通X光 (X-ray)

器官及骨骼的不同的密度，當X光投射及穿透人體某個部位後，便能在X光片上造成深淺不同的影像，幫助醫生診斷病症。X光檢查好像拍照一樣簡單，只須1至2秒便可完成，常用於照肺或骨骼等檢查。

## 電腦掃描

電腦掃描是以X光從不同的角度拍攝檢查部分的橫切面，常用於腦部檢查，卻不適用於腹部各種器官。每次掃描只須10秒，但檢查時不可移動。這項檢查事前要注射造影劑，有兩種情況需要注意。第一，病人若有哮喘，或對某些食物或藥物敏感，需預先服食抗敏感藥，減少或避免過敏反應。第二，癌症病童的血管比較脆弱，醫護人員注射劑藥時會特別小心。

## 磁共振掃描

磁共振掃描是利用無線電波和強力的磁場，將體內器官的影像清晰地顯示出來。因事前要注射造影劑，及機器發出的聲浪太大，必須佩帶耳塞；所以令人感到有點不舒服。整項檢查需時約30分鐘卻不准移動，年紀小的病人需要服食鎮靜劑，但多數癌症病童都能聽從指示，順利完成檢查。這種檢查對骨骼及腦部檢查非常有用，且沒有輻射，很適合小孩子使用。

## 超聲波掃描

超聲波是使用耳朵聽不到的高頻率的聲波，透過放置在病人身體的傳送器，將影像傳送到電腦螢光幕，讓醫生即時可以知道骨骼或腹部器官是否正常。由於毋須靜止不動，即時知道結果，又沒有輻射，是最輕鬆的檢查。

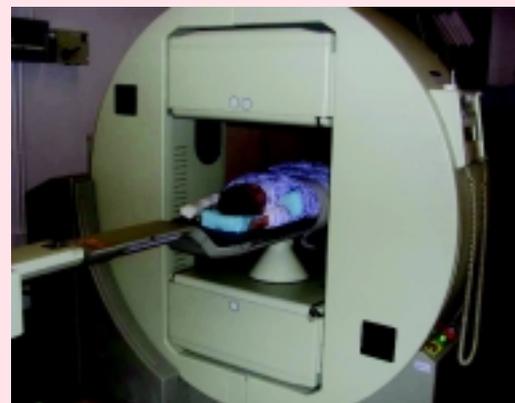


超聲波掃描 (Ultrasound)

## 核子掃描

事前要先注射放射原素，才可接受需時約30分鐘的檢查。這種檢查可知道癌細胞有沒有擴散至骨骼部分。由於接受的輻射劑量極之微少，對身體造成傷害的機會很低，毋須過分擔心。

當X光部門的醫生知道結果，會致電或於每星期的例會與兒童癌症中心的醫生討論，以便跟進病情。



核子掃描 (NM)

# Medical Imaging Procedures

Dr. Winnie Chu understands that many childhood cancer patients are anxious about many of the procedures used in the diagnosis of their illness. In the following article, she tries to explain the processes involved with the hope of dispelling some of the misconceptions about the methods used.

## X-ray

X-rays are electromagnetic waves that carry energy. They are part of the same family of waves as Light and Radio waves. X-rays are capable of penetrating objects. Because of the varying density of human organs and bones, an image can be created on X-ray film for diagnostic purposes. Effectively, when a patient has an X-ray, a photograph is taken of the internal structures of the body. It takes only 1 to 2 seconds and is usually used to take images of the lungs and bones.

## Computed Tomography (CT Scan)

The CT scan involves taking a series of X-ray images from different angles. CT scan can be used in imaging any parts of the body, commonly in the examination of the brain, neck, thorax and abdomen. These images are then processed by a computer in such a way that the doctor can see a detailed cross-sectional image of the scan area. The process takes only 10 seconds for each scan. During the process, the patient needs to keep as still as possible.



電腦掃描 (CT scan)

During the scan, the patient will be injected with a substance that helps improve the contrast of the image. This is always done with great care and causes a minimum of discomfort. The doctor will check beforehand to be sure that the patient does not

have an allergic reaction to the contrast medium.

## Magnetic Resonance Imaging (MRI)

MRI imaging uses radio waves together with a powerful magnetic field to produce extremely detailed images of internal structures of the body. It is particularly effective in the imaging of soft tissues. A contrast medium is injected to enhance the image. This can cause some discomfort, but



磁共振掃描 (MRI)

the majority of patients cope well with this. The machinery is also very noisy — but earplugs will be provided! However, if a patient becomes distressed, a mild sedative can be given which relieves the discomfort and allows the patient to sleep. During the process, a number of images will be taken and while a scan is in progress, the patient needs to lie still. Each scan last for a few minutes — although a series of scans is normally taken, so the whole process can take up to half an hour.

MRI is very useful for bone and brain examinations. The non-radioactive nature of MRI makes it most suitable for child patients.

## Ultrasound Scan (Ultrasound)

Ultrasound uses sound waves which are so high-pitched that we cannot hear them. The transmitter is placed on the patient's skin and, as the ultrasound reflects from within the patient, a receiver collects the echoes.

The signals are processed by a computer to give a "live" image for rapid diagnosis. Ultrasound rarely causes any discomfort to patients. In addition, patients are not required to lie still during the scan. Ultrasound does not produce any harmful radiation and is a very effective tool for the diagnosis of certain conditions.

## Nuclear Medicine Scan (NM)

Patients are injected with a small amount of a radioactive agent before undergoing the 30-minute scan. The radioactive emissions pass out of the patient's body and are detected by a special camera. The results enable the doctors to observe the spread of cancer cells in bones. The radioactive agent only stays within the patient for a short time and is very unlikely to produce any serious side effects.

Whichever of the above diagnostic methods is employed, doctors in Radiology and Organ Imaging Department will carefully analyse the results as soon as possible. The findings will be discussed with the CCC doctors by phone or in the weekly conference.

