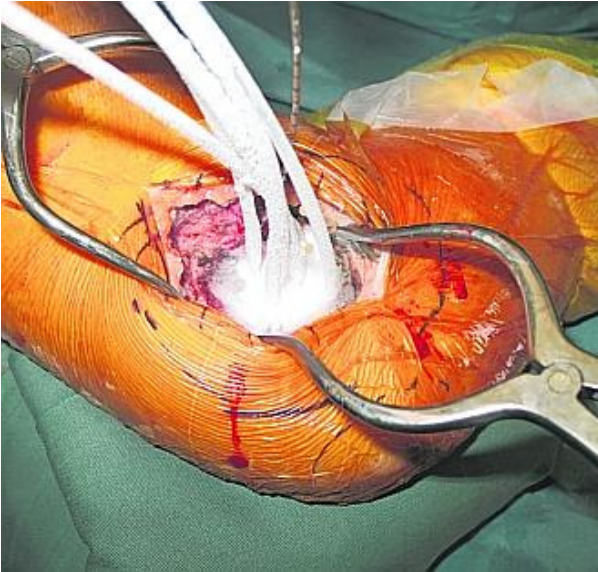


Freeze-and-cut way to remove bone tumours

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By LEE HUI CHIEH

Cryosurgery gives new hope to bone cancer patients and cuts recurrence rate



SAFER METHOD: A computer-controlled machine pumps argon gas under high pressure through metal probes into the bone tumour. -- PHOTO: NUH

THE phrase 'bone chilling' has taken on a new, literal sense.

Tumours in bones can now be cut out cleanly by first freezing them into rock-solid masses at a temperature of minus 100 deg C.

Less blood and bone is lost in this form of surgery called cryosurgery, achieved by training high-pressure jets of supercooled argon gas at the tumour before it is cut out.

This new treatment method at the National University Hospital (NUH) has been offering a new lease of life to bone cancer patients for whom conventional treatment is unsuitable or has failed.

These include patients whose cancers started elsewhere and spread to the bones, or those whose bone tumours have recurred.

The treatment also works for some patients whose tumours start in the bone. With such patients, the tumour is scraped out before a margin of the surrounding unaffected bone is frozen.

The freezing kills stray tumour cells that may be lurking there, and cuts down the risk of the tumour recurring from between 30 and 50 per cent to 8 per cent.

However, Assistant Professor Saminathan Suresh Nathan, a consultant at NUH's department of orthopaedic surgery, said that cryosurgery works only on certain tumours, depending on the kind of cells they are made of.

When it works, though, this treatment method gives 'a superior level of control - an edge we've never had before', he said.

The treatment can help about half the 13,000 people here who get bone tumours, benign or otherwise, he estimated.

Till now, patients with tumours only in the bones have typically undergone conventional surgery which involves scraping out the affected parts of the bone.

The recurrence rate is high, and if the tumour does return, the entire affected bone has to be removed.

Cryosurgery slashes the risk of recurrence, and unaffected bone can be saved, said Prof Nathan, who has operated on a dozen patients here this way since 2006.

Patients whose cancers began growing elsewhere and then spread to the bones are usually given radiation therapy, but this often does not stop the cancer from spreading.

Others may have tumours that bleed too much when cut, making conventional surgery too dangerous.

Without cryosurgery, these patients become crippled or bedridden, and eventually die.

Before the treatment using argon gas was developed, cryosurgery was performed by pouring liquid nitrogen through a funnel to freeze tumours before removing them.

This has hardly been done here because it is risky: The liquid nitrogen could spill and burn the patient's skin, causing wounds which may later become infected.

The nitrogen could also enter the bloodstream and expand into a bubble, which can block circulation and cause brain damage, heart failure or even death.

Under the new, safer technique, argon gas is pumped by a computer into the tumour under high pressure through metal probes.

None of the 12 patients who have undergone this procedure has seen tumours return, and they have become more mobile as well, said Prof Nathan.

The procedure costs about \$2,400 to \$4,220 at NUH.

Cryosurgery was her only hope



NEW LIFE: Madam Chin took three weeks to recover from cryosurgery, performed by Prof Nathan, compared to the nearly two months she spent in bed after conventional surgery. -- ST PHOTO: LAU FOOK KONG

MADAM Chin Siew Lain's problems started with a fingernail-size tumour in her cheek 36 years ago.

Doctors told her it was benign, which meant it would not spread to other parts of her body.

But it somehow did. The tumour cells travelled to her pelvic bone and grew into a 13cm-long mass - the size of an ostrich egg.

Madam Chin was 65 when she discovered it three years ago. She then entered an exclusive club of only 43 people worldwide whose benign salivary gland tumours had been reported to have become life-threatening cancers.

Her physician, Dr Goh Boon Cher, a senior consultant at the National University Hospital's (NUH) department of haematology-oncology, said hers was a 'very rare' case.

The tumour was uncovered through a scan she underwent on feeling pain on the left side of her pelvis.

Dr Goh and his colleagues, suspecting it had spread from elsewhere, then noticed a small growth on her cheek, just below her left ear. They were to find out from her that she had had it removed four times since 1972, only to have it pop up again.

When it was removed a fifth time, her doctors saw the similarity in the cells of both growths. The bone tumour was given radiation, which stopped its growth and bought her two pain-free years.

Last year, the pain came back: The tumour was on the march again. As chemotherapy was not known to work on this type of tumour, the only option left was surgery, Dr Goh said.

Last November, Assistant Professor Saminathan Suresh Nathan, a consultant at NUH's department of orthopaedic surgery, was slated to remove the tumour through conventional surgery.

But he had to stop the operation midway after removing just part of it because she was losing too much blood.

Nothing more could have been done for her, save for cryosurgery, which involved freezing the tumour with supercooled argon gas and then cutting it out cleanly. Four months ago, Madam Chin underwent this to remove the remaining tumour.

It took her three weeks to recover, compared to the nearly two months she spent in bed after the first operation. That time, her wound took longer to heal because her skin had previously been affected by radiation.

She said: 'The second time was much better. There was not much pain. I'm really grateful.'

Dr Goh is optimistic that she is out of the woods, saying: 'We are hopeful that the tumour can be contained in the pelvis.'