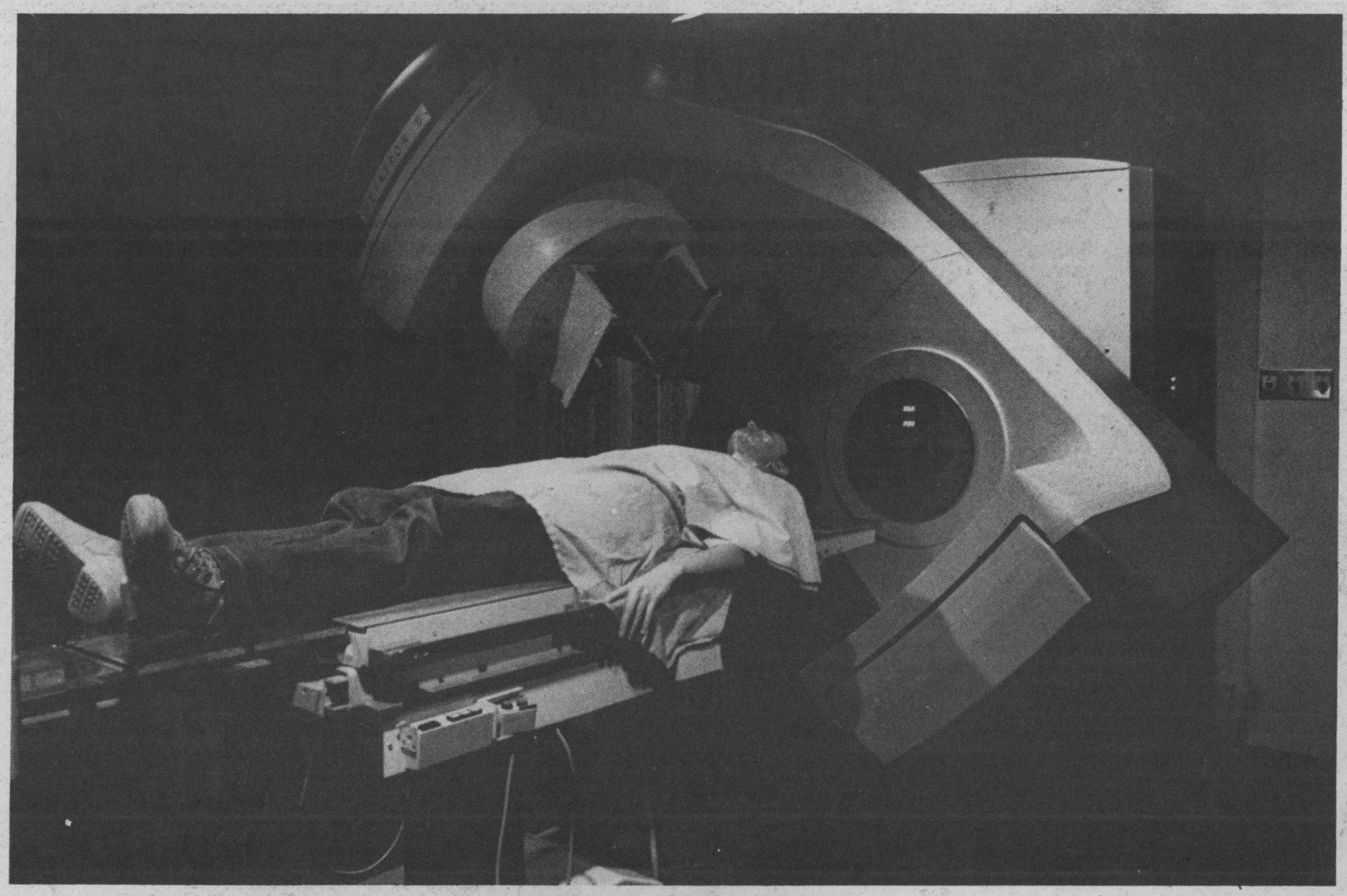

CANCER: RADIATION TREATMENT

Story by Portia Priegert

Photos by Russ Sampson

"Hello, Ms. Smith? This is Dr. Jones' office calling. The doctor wants you to come in and discuss your test results with him.

"No, no it's nothing serious, but we do want to see you as soon as possible."

Every year thousands of Albertans receive a call like this. But not every call is as routine as the receptionist would like to make it sound.

That's because in 1980 alone at least 7,500 Albertans will discover that they have cancer.

And that lingering sore throat or painful bump that prompted the visit to the doctor's office will turn out to be a symptom of one of North America's leading killing diseases.

The first thing the cancer victim has to deal with is the psychological shock that he has a serious disease with no real cure, says Dr. James Pearson, director of the radiation oncology department at Edmonton's Cross Cancer Institute.

"There's a denial at first," says Dr. Pearson. "It's difficult for patients to accept the fact that life does not go on forever."

According to Dr. Pearson the younger the patient, the harder it is for him to accept that he has cancer.

Yet, over one-and-a-half per cent, or 100, of the Cross Institute's patients are in their twenties.

Neil, 24, a recent U of A pharmacy graduate, is one of those patients.

Last fall he went to a doctor complaining of abdominal pains and discovered that he had cancer in his lymph nodes — and a tumor in his testis.

The testis tumor was removed by surgery, but Neil needed radiotherapy to treat the lymph node cancer.

"I was shocked and mad at first," he says. "You never think cancer will happen to you."

For his radiotherapy, Neil came to the Cross Institute, located on the southern edge of the U of A campus. The only cancer center in Northern Alberta which offers radiation treatment, it serves three-fifths of Alberta's population, and provides radiotherapy for more than 2,000 patients annually.

According to Dr. Pearson, most cancer patients who live more than five years after treatment do so largely because of radiotherapy.

The Institute also provides chemotherapy — treatment with drugs — which is generally used in more advanced, more generalized or more inaccessible cancers. However, chemotherapy is not as successful as radiotherapy, mainly because more localized and less advanced cancers have a better chance of cure.

Radiotherapy treats cancer by irradiating the tumor or cancerous growth and killing the diseased cells.

Dr. Pearson explains. "We try to give as high a dose of radiation as we can to the diseased area to give as high a possible chance of eradicating the tumor, but not so high as to cause normal tissue damage."

A standard choice would be an amount of radiation where 90 per cent of the tumor has a 75 per cent chance of responding to the treatment.

"We don't want to miss any of the tumor but we don't want to drop the dose too much, either."

Cancer cells are more sensitive to radiation than are normal tissue cells, so there's only a small danger of cancer being induced in surrounding tissues — "a very acceptable risk and much better than no treatment at all," says Dr. Pearson.

And the accuracy of radiotherapy, which was pioneered at the beginning of the century, is increasing all the time.

Linear accelerators, which have largely replaced the earlier cobalt units, speed electrons to high velocities to produce high energy x-rays which are directed at the tumor and destroy cancerous cells.

An average patient may have 10 to 15 radiotherapy treatments of perhaps one to two minutes each over a period of two to three weeks.

For Neil, who has a good chance of recovery, the treatments were done during an early morning visit to the Institute before he started work.

Neil says he's glad he continued his job, despite the inconveniences. "I needed to keep my mind on something. I try to take things a day at a time."

But the people he works with were really shocked to find out that he had cancer. "Cancer is a funny thing," he says. "When you get a cold you look sick. But I was healthy and doing my job."

Neil's cancer treatment didn't stop him from getting a promotion either. And he says that if he didn't have that to look forward to, he could have faced a much more difficult time adjusting to his disease.

Actual radiotherapy treatment is done only after complex preparations.

After a patient is referred to the Cross Cancer Clinic, various tests completed and the cancer diagnosed, a group of cancer specialists will prescribe a general treatment program which may involve surgery, chemotherapy and/or radiotherapy.

Many of the radiotherapy patients will have a body shell built to assist in positioning them for radiation treatment. The shell fits like a second skin and is made by laying plaster strips across the patient's body to form a plaster mould. A plastic cast is then manufactured from that mould.

When the plaster cast is completed the patient is placed under the simulator, a machine that imitates all the movements of the treatment units. The simulator takes x-rays of the tumor areas and helps assess a suitable treatment procedure.

After this, the patient's information, x-rays and scans go to the treatment planning department, where an actual program of treatment is devised.

The treatment planning, done by a technician working under the direction of a medical physicist, can take anywhere from half an hour to two days, and will be approved by a doctor before treatment begins.

The patient is then ready for the actual radiation treatment.

The following two pages contain a step-by-step pictorial essay of a radiotherapy treatment.