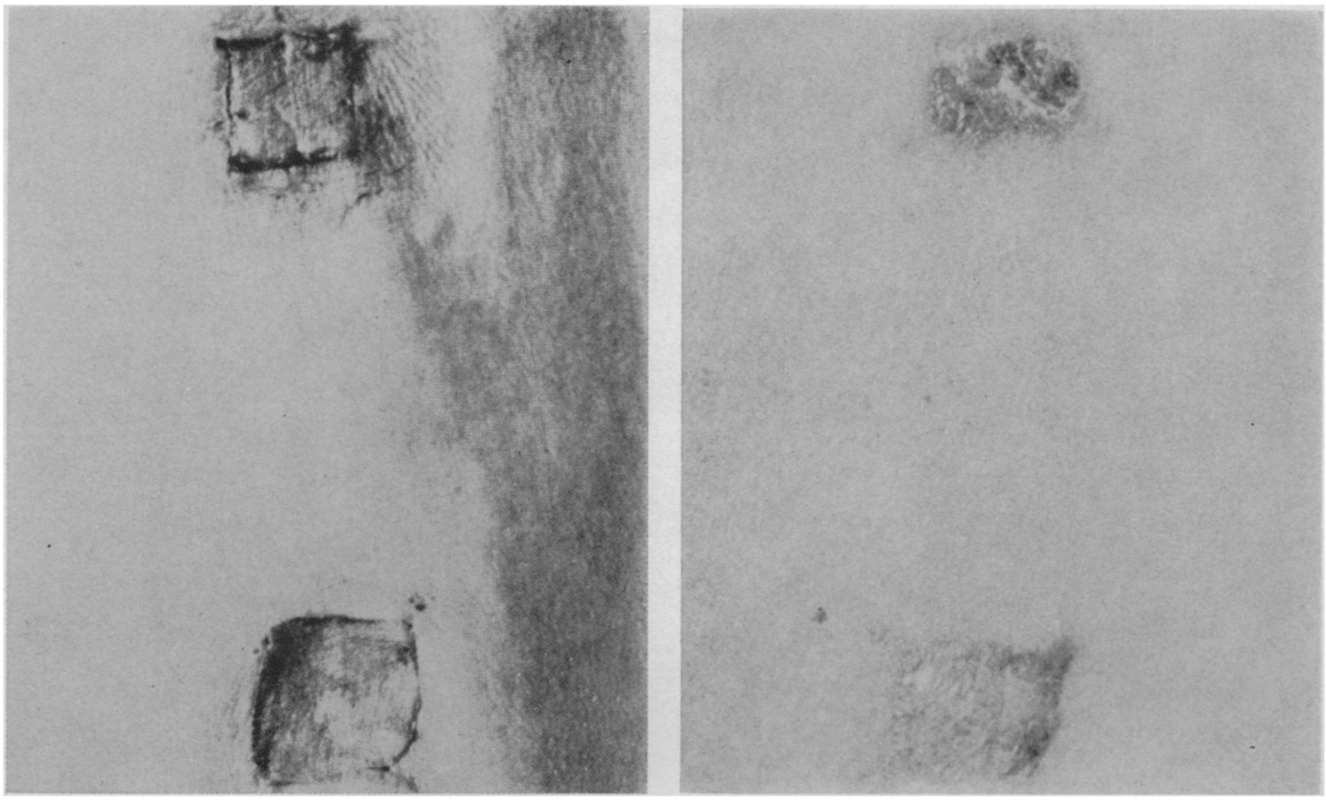

The two lower grafts are from cancer patients; on 45th day lower right persists but upper right is almost rejected.

SKIN GRAFTS

Tissue survival prolonged

Jerusalem: Burn victims survive critical period of growing their own skin when given grafts from donors with cancer

by Hadassah Gillon

Skin grafts are a kind of nature-made bandage. In cases of severe burns or other severe injuries, they can prevent infection and stop the leakage of proteins, electrolytes and other vital substances.

Unfortunately, the body may quickly reject the foreign skin tissue, and the patient will lose his biological dressing. The result may be increased sickness and even death.

If the life of the skin graft could be significantly prolonged, it would be an important achievement.

Skin grafts taken from a patient with a malignancy have the necessary prolonged survival time before they are rejected.

Dr. Mahum Ben-Hur and others at the Hadassah-Hebrew University Medical Center in Jerusalem have found that in 40 patients, who were subjected to two skin transplants, one from a normal donor and one from a patient with cancer, the survival of the grafts from the cancer patients was significantly prolonged.

In one case, a young patient at the Hadassah Medical Center with second- and third-degree burns involving 70 percent of the body surface, treated for burns for 19 days, received several different grafts, one from a patient who had died of cancer of the larynx and three from others who had died from nonmalignant diseases.

The graft from the cancer patient survived for over 60 days; those from the other patients only 12 to 18 days. The prolonged survival time enabled the patient to overcome the critical period, and after 126 days he could leave the hospital.

By this time, the grafts from the cancer victim had sloughed off as well; the patient was meanwhile covered by his own skin. A similar experience is recorded with a patient with severe bedsores.

The usually accepted method of combatting immunological rejection to grafting is to try to depress the number of antibodies being produced by the host to fight the foreign protein. This is done by administering cortisone, cytotoxic cell agents, anti-white-cell serums, or by means of radiation.

Dr. Ben-Hur and his colleagues prefer to treat the graft itself instead of the patient after he receives it: so that

. . . skin grafts

the antigenic pattern of the tissues being grafted is changed or decreased, and the tissues are then less likely to promote the formation of antibodies. In this way, the survival time of the graft is prolonged before rejection.

The scientists came to this approach when they began to ask themselves why the female body does not reject the fetus, which is, after all, one form of grafting of cells of a different genetic constitution. From this, they went on to wonder why a certain type of cancer of the uterus, which develops after pregnancy and also contains the father's genes as well as the mother's, is not rejected. They then found that tumors are extremely useful for the clarification of the immunological laws governing tissue grafting, because when cancer cells infiltrate and spread in the body, they seem to do so without the antigen-antibody immunity reaction, since they are not rejected by the body.

This led them to try experiments in which skin grafts were taken from mice suffering from Ehrlich ascites tumors in the abdominal cavity. These grafts were then attached to mice without cancer.

They found that the length of time that the skin graft survives is significantly longer than that of grafts taken from normal mice and grafted on to other normal mice. This prolongation of graft survival is thought to be due to changes in the antigenic pattern or even to a loss of antigen in the grafted skin from cancerous mice.

When they injected healthy mice with tumor and then, a week later, took skin from them and grafted it onto other healthy mice, the survival times of the grafts were three times as long as that of grafts taken from mice without tumors. This suggested the idea to the team that there is a release of some factor from the tumor cells which is responsible. This factor they designated as "antigen loss factor."

In order to investigate the mechanism involved in the prolongation of survival time of the skin grafts, grafts from black mice were immersed for two hours in Ehrlich ascites tumors before grafting on to white mice. The survival time of the grafts was prolonged. A problem that arose was that the tumor cells started to grow and destroy the grafts, although Ehrlich ascites tumor was not previously known to grow on skin.

Dr. Ben-Hur surmises that this may be due to the fact that this particular type of cancer may be viral in origin, which may not be true for other cancers, such as cancer of the human breast.