

CHAPTER - I.

Histological Studies of Normal and Tumour Tissues.

Tissue Processing and Sectioning :- The transplanted tumours studied are (1) Fibrosarcoma (MFS) (2) Schwartz leukaemic tumour (S.L.T.).

Tumours are studied histologically along with normal muscle tissue of the mice as control.

Small blocks of tumour tissues were collected from Swiss albino mice. Normal muscle tissues were collected from the healthy hind limb.

Tissue blocks were fixed in 10% formol solution for 24 hours. Blocks were then thoroughly washed in water and dehydrated in 70% alcohol for 12-24 hours. The tissues were put in absolute alcohol for 2 hours. The process was repeated for 2 times.

Tissue blocks were clarified in xylol by two changes (1st change 1 hour, 2nd change 2 hours).

Tissues were then put in molten paraffin in a paraffin bath (M.P. 54° to 56° C). Thorough and uniform impregnation was necessary to have a good section. Small paraffin blocks were obtained by pouring molten paraffin over the tissue in a mould when cold, small blocks were obtained.

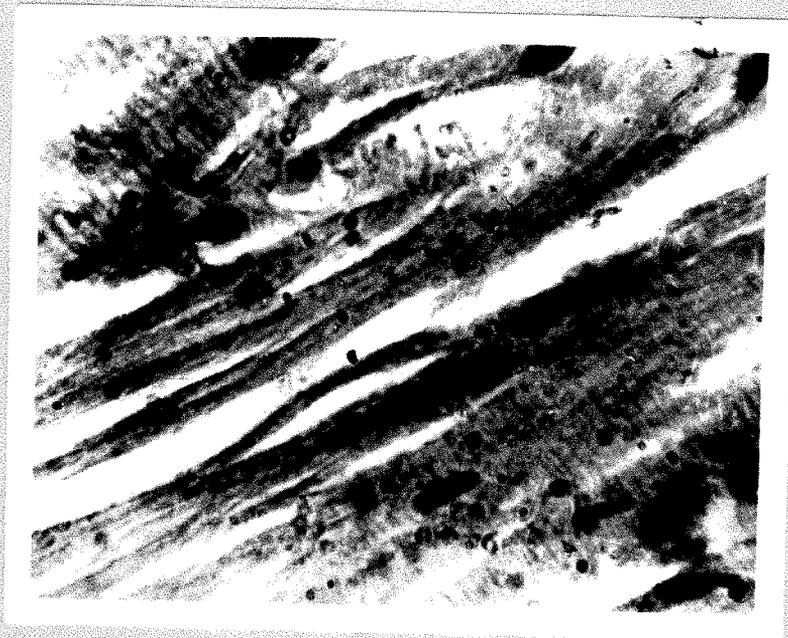


Fig. 1. Microscopical view of
Skeletal Muscle.

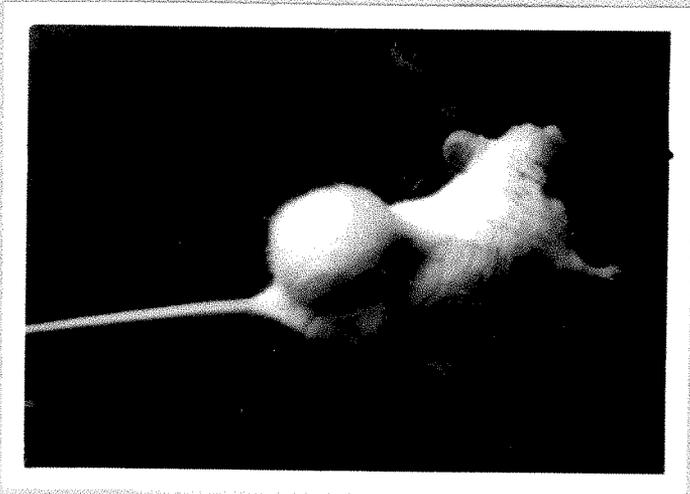
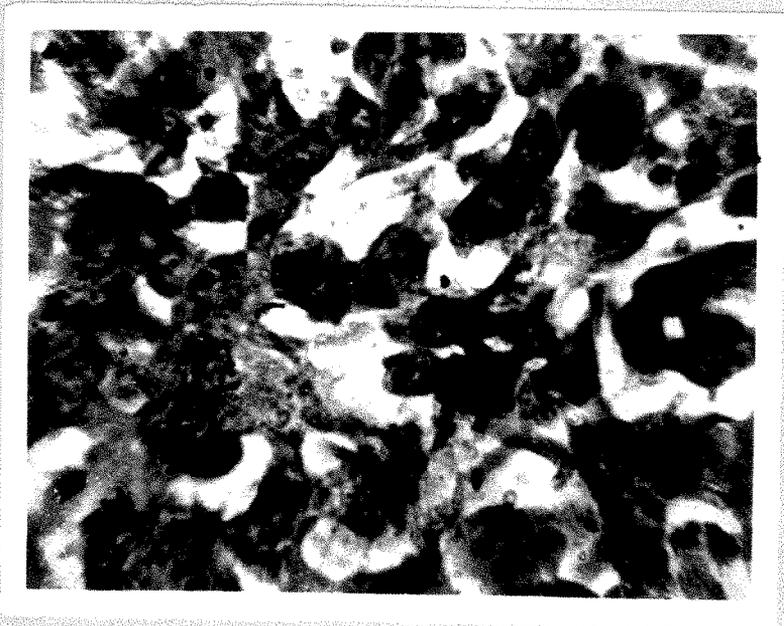


Fig.2. Mouse Fibrosarcoma.



.....
Fig.2'. Microscopical view of
Mouse Fibrosarcoma.
.....

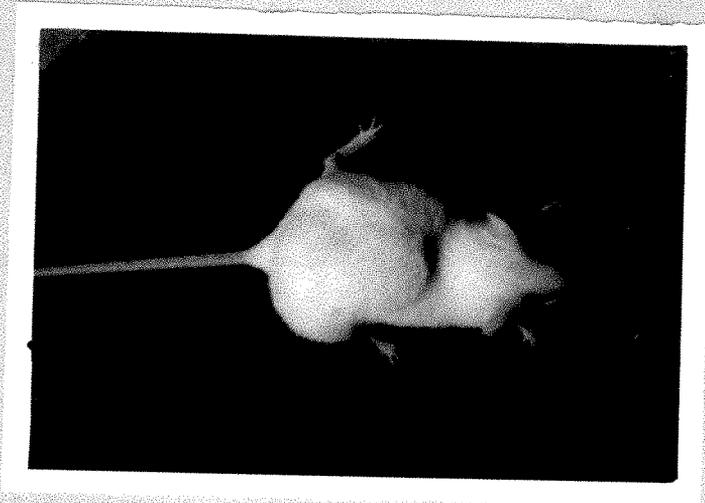


Fig.3. Schwartz leukaemic Tumour
in Mouse.

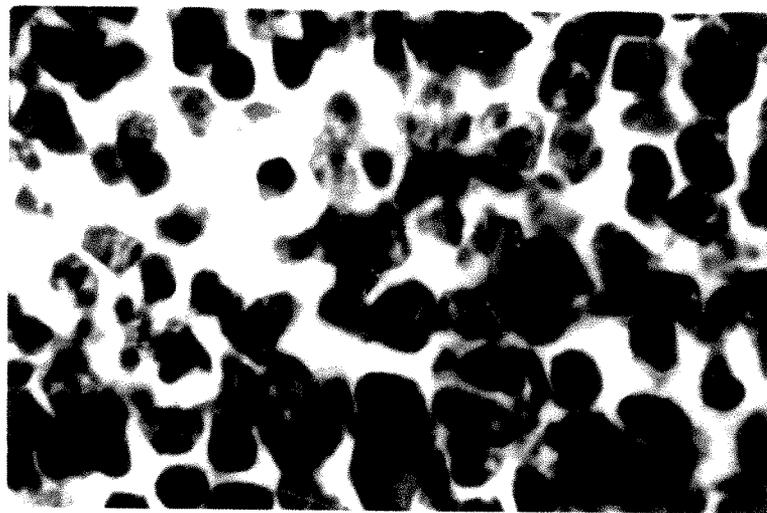


Fig.3'. Microscopical view of
Schwartz leukaemic Tumour.

These tissue blocks were cut into thin sections (5-6 μ) by a microtome. Sections were mounted on clean slides which were evenly precoated with Meyer's egg albumin.

Sections were properly dried up by putting them in paraffin oven.

Staining :- Sections were deparaffinised with two changes of xylene (1 min. each). Xylene was removed by two changes of absolute alcohol for 5 mins. After that, sections were rinsed in 90%, 70%, 50% and 30% alcohol. Sections were thoroughly rinsed with tap water and stained with Harris alum-haematoxylin for 3 mins. washed in tap water and sections were given 3 rapid dips in acid alcohol (1%) and quickly washed in running tap water for differentiation. After that, sections were stained with 0.5% alcoholic eosin for 1 min. Sections were dehydrated through ascending grades of alcohol, xylol, and mounted in Canada balsam. Sections were examined under a microscope and finally microphotographs were taken.

Histology :

Skeletal muscle tissue :- Skeletal muscle tissue shows red fibres running parallel with longitudinal and transverse striations. Each fibre has well defined bluish nucleus (Fig.1).

M.F.S :

Fibrosarcoma is the most common tumour observed in mice. This tumour originates from fibrous connective tissue. It develops in any place subcutaneously wherever transplanted in the mammary line. It also develops when injected subcutaneously in the hind limb.

Waravdekar and Ranadive (1957) obtained it by subcutaneous injection of 6:12 dimethylbenzo-1, 2-b 5, 4-b' dithionapthene in Swiss albino mice and this tumour was maintained in the same host strain since that time. This strain was obtained from Indian Cancer Research Centre, Bombay.

Macroscopically :- The tumour is highly vascular and rapidly growing. Cut surface is haemorrhagic, soft and bulges out with irregular surface.

Microscopically :- It shows closely packed spindle and round shaped tumour cells giving a picture of mixed cell sarcoma. There are solid masses of cells alternating with large and small whorls and interlacing bands of fibrous tissue. The tumour cell exceeds the stroma and the latter is difficult to identify. The tumour cells have large round or elongated hyperchromatic nuclei with more or less irregular outline and have one or more large nucleoli. The cytoplasm is pale and scanty. Some tumour cells are in mitosis. There are

multiple tumours giant cells evident in the picture (Fig.2).

Schwartz leukaemic tumour :- This strain was obtained from Chittaranjan National Cancer Research Centre, Calcutta and maintained in our laboratory through serial transplantation in Swiss albino mice.

Tumour arises from lymphoid tissue when tumour homogenate is injected subcutaneously. Tumours are soft and vascular.

Microscopically :- Microscopically section shows sheets of cells comprising chiefly of lymphoblasts with large nucleus and number of nucleoli in the nucleus. Cytoplasm is scanty and basophilic. The nuclei of many cells are in mitosis. A number of reticulum cells are also found (Fig.3).