Tumor

- **TUMOURS**
  Definition: A tumor or neoplasm is a self-controlling growth due to unlimited multiplication of abnormal cells.
- **Classification of tumors according to the behavior:**
  1- benign.
  2- Locally malignant tumors.
  3- Malignant tumors

- **Character of benign tumor**
  (1) benign tumor is usually of small size, the margin is sharply defined.
  (2) Benign tumors are capsulated.
  (3) The cut surface is usually solid, but may by cystic. Necrosis and hemorrhage are very rare or absent.
  (4) Rate of growth*:* Slow.
  (5) Mode of growth**:** Grow by expansion, i.e. compresses the surrounding tissue.
  (6) Localization: Localized at the site of origin. They do not spread.
  (7) Effect on the host: Does not kill the host except when it compresses vital structures.
  (8) Recurrence: Absent if well excised.
  (9) Prognosis is good.

- **Microscopic Picture:**
  (1) The cells resemble the cells of the tissue of origin as regard the cell type and patterns of arrangement. This is called differentiation. The cells are usually small, equal size and of similar shape.
  (2) The nucleus is usually small compared to the cytoplasmic mass. Mitotic figures are few or absent.
  (3) Benign tumors have well formed stroma and few blood vessels.

- **Character of malignant tumor**
  (1) Malignant tumours usually of large size, the margin is ill-defined.
  (2) Malignant tumors are not capsulated.
  (3) The cut surface is usually solid, but may by cystic and usually shows necrosis and hemorrhage. (4) Rate of growth*:* rapid.
  (5) Mode of growth**:** Grow by infiltration. The malignant cells proliferate and push themselves in between the surrounding normal cells in all directions.
  (6) Localization: The tumor does not remain locally at the site of origin, but sends secondaries or metastasis to other organs.
  (7) Effect on the host: kill the host.
  (8) Recurrence: usually recurs.
  (9) Prognosis is bad.

- **Microscopic picture:**
  (1) The cells do not resemble the cells of the tissue of origin as regard the cell type and patterns of arrangement. This is called loss of differentiation. The cells are usually large, and show pleomorphism i.e. variation in size and shape
  (2) The nucleus is usually large and hyperchromatic. The nucleo-cytoplasmic ratio is increased.
  (3) Mitotic figures are frequent.
  (4) The nuclei are variable in size, shape and position within the cells (pleomorphism). The nucleolus is frequently present and often large
  (5) malignant tumors have scanty stroma and contains many thin walled blood vessels.

- **SPREAD OF MALIGNANT TUMOUR**
  (1) Direct or Local Spread
  Malignant cells infiltrate the surrounding tissues in all direction the lines of least resistance. Spread to the skin or mucous membranes form malignant ulcer.
  (2) Lymphatic Spread: More common in carcinomas and occurs by two ways:
  (a) ***Lymphatic embolism:*** The malignant cells invade the wall of a lymph vessel, detach as small groups and are carried as tumor emboli. The emboli reach the draining lymph node.
  (b) ***Lymphatic permeation:*** The tumor cells grow within the lumen of the lymphatic vessels as solid cords which extend to a variable distance.

- **(3) Blood Spread:**
  Malignant cells invade the thin walled veins, become detached and pass as tumor emboli. This commonly occurs with sarcomas which spread early by blood. The common sites of blood metastasis are lung, liver ,bone,brain.
  (4) Transcoelomic Spread:
  This is spread through the serous cavities. The commonest example of transcoelomic spread is gastric and colonic carcinomas form deposits on the surface of the ovary. The ovarian metastasis are known as krukenberg's tumor".

- **(5) Implantation:** This is either:
  (a) ***Implantation through natural passages:*** Detached malignant cells from carcinoma of the renal pelvis may get implanted on the mucosa of the urinary bladder forming metastatic nodules. (b) ***Direct implantation:*** During surgical removal of a malignant tumor malignant cells may get implanted in the surgical wound forming metastatic nodules.