

## Benign tumour

A **benign tumour** is a tumour that lacks the ability to metastasize. Common examples of benign tumors include moles and uterine fibroids.

The term "benign" implies a mild and non-progressive disease, and indeed, many kinds of benign tumours are harmless to the health. However, some neoplasms which are defined as 'benign tumors' because they lack the invasive properties of a cancer, may still produce negative health effects. Examples of this include tumors which produce a "mass effect" (compression of vital organs such as blood vessels), or tumors of endocrine tissues, which may overproduce certain hormones (examples include thyroid adenomas, adrenocortical adenomas, and pituitary adenomas).

Benign tumors typically are surrounded by an outer surface (fibrous sheath) that inhibits their ability to behave in a malignant manner. Nonetheless, many types of benign tumors have the potential to become malignant and some types, such as teratoma, are notorious for this.

### Classification

The term "tumour" literally means "swelling", and the broadest definition of "benign tumour" encompasses all abnormal tissue masses which are not cancers. In practice, most of these entities are neoplasms, meaning that they contain a discrete population of cells which proliferate in an independent manner, usually as the result of acquired genetic abnormalities. Entities which may be referred to as "tumors" but are non-neoplastic include developmental abnormalities, such as *hamartomas* and *ectopic rests* (normal tissue in an anatomically abnormal location).

Benign neoplasms are typically composed of cells which bear a strong resemblance to a normal cell type in their organ of origin. These tumors are named for the cell or tissue type from which they originate, followed by the suffix "-oma" (but not -carcinoma, -sarcoma, or -blastoma, which are generally cancers). For example, a *lipoma* is a common benign tumor of fat cells (lipocytes), and a *chondroma* is a benign tumor of cartilage-forming cells (chondrocytes). *Adenomas* are benign tumors of gland-forming cells, and are usually specified further by their cell or organ of origin, as in *hepatic adenoma* (a benign tumor of *hepatocytes*, or liver cells). There are a few cancers with 'benign-sounding' names which have been retained for historical reasons, including *melanoma* (a cancer of pigmented skin cells, or melanocytes) and *seminoma* (a cancer of male reproductive cells)

In some cases, certain "benign" tumors may later give rise to malignant cancers, which result from additional genetic changes in a subpopulation of the tumor's neoplastic cells. A prominent example of this phenomenon is the *tubular adenoma*, a common type of colon polyp which is an important precursor to colon cancer. The cells in tubular adenomas, like most tumors which frequently progress to cancer, show certain abnormalities of cell maturation and appearance collectively known as dysplasia. These cellular

abnormalities are not seen in benign tumors that rarely or never turn cancerous, but are seen in other pre-cancerous tissue abnormalities which do not form discrete masses, such as pre-cancerous lesions of the uterine cervix. Some authorities prefer to refer to dysplastic tumors as "pre-malignant", and reserve the term "benign" for tumors which rarely or never give rise to cancer.

### Signs and symptoms

Benign tumors are very diverse, and may be asymptomatic or may cause specific symptoms depending on their anatomic location and tissue type. Symptoms or pathological effects of some benign tumors may include:

- Bleeding or occult blood loss causing anaemia
- Pressure causing pain or dysfunction
- Cosmetic changes
- Itching
- 'Hormonal syndromes' resulting from hormones secreted by the tumour
- Obstruction, e.g., of the intestines
- Compression of blood vessels or vital organs

### Treatment

Many benign tumors do not need to be treated at all. If a benign tumour is causing symptoms, presents a health risk, or causes a cosmetic concern for the patient, surgery is usually the most effective approach. Most benign tumors do not respond to chemotherapy or radiation therapy, although there are exceptions.

*Muqdad fuad*