

Neoplasia Lecture 2

Neoplasia - Terminology

neo =new, plasia = growth

Tumour = swelling

Cancer = ‘crab’

Desmoplasia = stimulation of
excessive connective tissue (collagen)
formation by parenchyma cells

Neoplasia - Nomenclature

Benign neoplasms =oma eg. fibroma, lipoma, adenoma
(exceptions: melanoma, seminoma, lymphoma)

Malignant neoplasms

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Mesenchymal:sarcoma

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Epithelial:carcinoma

Divergent differentiation of parenchymal cells –mixed

tumour eg. pleomorphic adenoma of salivary gland.

Neoplasm from more than one germ layer –teratoma

Ectopic rest of normal tissue –c horistoma

Aberrant differentiation forming a mass of disorganised but mature specialised cells or tissue indigenous to the particular site -ha martoma

Neoplasia - Definition

Willis

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“a neoplasm is an abnormal mass of tissue, the growth of which exceeds and is unco-ordinated with that of the normal tissues, and which persists in the same excessive manner after cessation of the stimulus which has evoked the change”

Pitot(1986)

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“a tumour is a heritably altered, relatively autonomous growth of tissue”

Summary

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“tumours are purposeless growths of tissue that tend to be atypical, autonomous and aggressive”

Neoplasia - Characteristics

Cell proliferation: escape from normal control →
immortalisation → most instances, single cell type; numbers
inappropriate for anatomical site → tumour

Cell differentiation: impaired differentiation of cell line.

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Poor degree of differentiation → worse behaviour of neoplasm.

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Poor differentiation → acquisition of functional characteristics foreign to differentiated cells eg. foetal proteins etc.

Relationship between cells and surrounding stroma:

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Growth in compact mass → benign neoplasm

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Growth in invasive manner → malignant neoplasm

Neoplasia - Characteristics

Neoplasms are derived from cells that normally maintain a proliferative capacity (mature neurons and cardiac myocytes do not give rise to tumours)

A tumour may express varying degrees of

differentiation, from relatively mature structures that mimic normal tissues to a collection of cells so primitive that the cell of origin cannot be identified.

The stimulus responsible for the uncontrolled proliferation may not be identifiable; it is not known in most human neoplasms.

Neoplasia arises from mutations in genes that regulate cell growth, apoptosis or DNA repair.

Neoplasia - Classification

Behaviour (benign vs. malignant)

Histogenetic (tissue of origin)

Combination