Anatomopathology
Anatomopathology

- Biopsies
- Frozen section
- Surgical specimen
- Peculiarities for various tumor site
- References
Biopsies

Minimum data, which should be given by the pathologist:

- precise tumor type and its degree of differentiation
- presence of severe dysplasia/in situ carcinoma
- if possible, pattern of invasion
- vascular and/or perineural involvement
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Frozen section

- sometimes necessary to determine tumor type, if not known preoperatively
- study of tumor margins
- specimen submitted to frozen section should not exceed 10 mm
- should only be done if the result modifies surgical resection
Anatomopathology

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Mandatory informations from the surgeon
- precise localization of the lesion and type of resection
- clinical TNM
- previous treatment, if applicable
- type of lymph node resection and resected levels
- other lymph nodes should be sent separately and correctly labeled
- precise orientation of surgical specimen with annotated diagrams
- indication of surgically critical margins
Surgical specimen

Pathological data for the primary carcinoma which should be given by the pathologist

- maximum diameter of tumour
- maximum depth of invasion from the surface (if applicable)
- histological type of tumour
- degree of differentiation
- invasive front of the tumour (cohesive or not)
- distance from invasive tumour to surgical margins (>5mm; 1-5mm; <1mm)
- vascular invasion
- nerve invasion, especially extra-tumoural
- bone/cartilage invasion
- severe dysplasia/in situ carcinoma, adjacent to the primary carcinoma and at the resection margins
Surgical specimen

Pathological data for the primary carcinoma which should be given by the pathologist
- other features of uncertain prognostic significance:
  • type and intensity of inflammatory infiltrate
  • involvement of tracheostomy
  • response to previous therapy
  • results of other investigations, such as immuno-histochemistry,
    ...
- no other prognostic factor has actually proven useful in routine practice
Surgical specimen

Selection of blocks for histology - Primary tumor
- tumor: one block per cm, including one selected to demonstrate maximum depth of tumor if less than 1cm, include whole tumor
- defined mucosal and soft tissue margins
- non-neoplastic mucosa
- surgical bone margins
- bone or cartilage, if grossly involved
- thyroid
- tracheostomy site
Pathological data for the neck dissection which should be given by the pathologist:
- for each anatomical level, total number of lymph nodes and number of metastases
- dimension of largest metastases
- presence or absence of extracapsular spread and level involved
- other infiltrated anatomical structures
- metastatic masses should be measured and localized
- other features of unknown prognostic significance: micrometastases (<3mm), other lymph node diseases, response to previous therapy (e.g. keratin debris), ...
Selection of blocks for histology-neck dissection
- identify anatomical structures such as salivary glands, external jugular vein, sternocleidomastoid muscle, ...
- include small lymph nodes as a whole, with a small rim of adipose tissue
- large lymph nodes should be sectionned
- one H and E slide per lymph node is enough
- if untreated, a radical neck dissection should yield an average of 20 lymph nodes (10-30), including all lymph nodes >3mm
- sample all other anatomical structures involved by the tumor
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Site of resection

**Primary tumor: oral cavity and oropharynx**

- 5 mm thick slices to study the relationship of tumour with surgical margins and maximum depth of invasion
- transverse sections for tumors from the lateral and central parts of the mouth
- sagittal sections from tumors of the anterior part
- if tumor is in the vicinity of bone, specimen should be decalcified before sectionning
Site of resection

**Primary tumour - larynx and hypopharynx**

- 5 mm thick horizontal slices to appreciate the relationship between the tumor and the laryngeal cartilages, after 48 h of decalcification
- Macroscopic description should include precise location of the tumor, the different anatomical structures resected and the importance of cartilaginous and soft tissue involvement
- Supraglottic tumors should be sliced sagitally to determine the relationship with base of tongue
Site of resection

**Primary tumor:**
paranasal sinuses and maxillectomy specimens

- precise and careful orientation by the surgeon is important as these are usually complex macroscopic specimens
- critical surgical margins should be sent separately
Primary tumor: nasopharynx

- use WHO classification:
  type I: keratinizing squamous carcinoma
  type II: nonkeratinizing squamous carcinoma
  type III: undifferentiated carcinoma with or without lymphocyte admixture

- always formalin fixation for immunohistochemistry and/or in situ hybridization to prove EBV infection:
  IHCH: LMP1 (late membrane antigen);
  if negative, ISH: EBER (early nucleic acid)
Site of resection

**Primary tumour: skin**

- for specimen larger than 1 to 2 cm, correct orientation is mandatory
- ink lateral and inferior surgical margins
- do not do any shaving of lesions, especially if suspicion of melanoma
Site of resection

Primary tumour- skin

- resection margins are dependant on tumor type:
  • for benign lesions:
    total macroscopic resection
  • for basocellular carcinoma:
    frozen section are useful, as microscopic infiltration is usually larger than clinically suspected, especially if recurrence and in certain localisations where margins are by definition short, as around the eye, on the forehead and cheeks
Site of resection

Primary tumour: skin

- resection margins are dependant on tumor type:
  • for squamous carcinoma: 4 mm margins
    with the exception for tumours larger than 2 cm, moderately
    and not well differentiated carcinoma, infiltration of
    subcutaneous tissue and localisation in a high risk area: 6 mm
    margins
Site of resection

Primary tumour: skin

- resection margins are dependant on tumor type:
  • for melanoma: dependant on tumor depth
  - known melanoma: 1 cm, sufficient if melanoma does not exceed 1.5 mm in depth
  - melanoma > 1.5 mm: 2 to 3 cm
  - in situ melanoma or lentigo maligna: 5 mm
  - for all invasive melanoma: resection of subcutaneous tissue, respecting aponevrosis
Site of resection

Primary tumour: salivary glands

- Preoperative diagnosis

  - if clinical or imagery doubt on diagnosis => FNA
  - if first FNA negative or non contributive => US guided 2nd FNA
Primary tumour: salivary glands

- Macroscopy:
  - ink surgical margins
  - cut paralell sections
  - look for intraglandular lymph nodes and major nerves (parotid)
  - type of specimen
  - tumour size, location, distance from closest margin
  - solitary or multiple, cystic or solid, encapsulated, circumscribed or poorly defined, hemorrhage or necrosis, extraglandular extension
  - appearance of non-neoplastic gland
Primary tumour: salivary glands

- Microscopy:
  - 2 or more sections of tumour including capsule or tumor margins
  - non-neoplastic gland
  - facial nerve margins and lymph nodes, if included
  - tumor type and its degree of differentiation, if applicable
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**References**
References

- Standards and minimum datasets for reporting common cancers: minimum dataset for head and neck carcinoma histopathological reports, Royal College of Pathologists, http://www.rcpath.org