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Malignant Mesothelioma

1. GROSS DESCRIPTION

Specimen

— pleural, peritoneal or laparoscopic aspiration cytology or biopsy/thoracoscopic or open biopsy/pleurectomy/extrapleural pneumonectomy/omentectomy.
— size (cm) and weight (g).
— pleural disease can be asymptomatic or present with pain, breathlessness or general systemic effects, e.g. weight loss. Pleural plaques, thickening and calcification are demonstrated by chest X-ray and CT scan. Thoracentesis or pleural fluid aspiration can be diagnostic or therapeutic for symptomatic relief. Percutaneous closed needle biopsy is diagnostic in a minority of cases (30–50%) and may need to be supplemented by CT-guided thoracoscopic biopsy or open pleural biopsy. The latter may be allied to decortication or stripping of the constricting visceral peel. Chest wall biopsy site seeding is a particular problem for which preventative radiotherapy is used. Pleurectomy attempts to debulk the mesothelioma providing multiple strips of pleural membrane. Extrapleural pneumonectomy is en-bloc resection of the pleurae, lung, ipsilateral hemidiaphragm and pericardium. Peritoneal disease may present with ascites and a tissue diagnosis is obtained by peritoneal fluid cytology, laparoscopic or open biopsy.

Tumour

Site

— pleural (parietal/visceral)/pericardial/peritoneal.
— pleura (>80%) is the commonest site, then peritoneum (10–15%).

Size

— length × width × depth (cm) or maximum dimension (cm).

Appearance

— localized (solitary)/diffuse/nodular/plaque/infiltrative/cystic change.

Edge

— circumscribed/irregular.

2. HISTOLOGICAL TYPE

Adenomatoid tumour

— benign: circumscribed pale nodule in the epididymis, fallopian tube or uterine myometrium with or without a serosal connection. Microcystic pattern of mesothelial proliferation with intervening smooth muscle prominence.

Localized solitary fibrous tumour

— rare/solitary/visceral pleura, circumscribed/ smooth or bossellated.
— "patternless" fibroblasts and vessels with bland cytology, 90% benign, CD34 positive.
— now regarded as arising from subserosal fibroblasts/mesenchymal cells rather than from mesothelium and is encountered in other organs.

Multicystic peritoneal mesothelioma (Multilocular Peritoneal Inclusion Cysts)

— on the surfaces of the uterus, ovary, bladder, rectum and pouch of Douglas it is potentially locally recurrent and, rarely, present in retroperitoneum, bowel mesentery and wall. Differential diagnosis of lymphagitic (lining cells are cytokeratin negative) and unilocular peritoneal inclusion cysts, and cystic adenomatoid tumour or malignant mesothelioma. Fifty percent recur over many years and can occasionally lead to death. Some have a previous history of surgery, endometriosis or pelvic inflammatory disease.

Well-differentiated papillary peritoneal mesothelioma

— middle-aged women. Rare, with most being an incidental finding at hysterectomy. Localized and benign but can be extensive and diffuse nodular serosal/omental disease with ultimately progression and ascites. Rarely pleural based.

Diffuse malignant mesothelioma

— main varieties are epithelial (epithelioid), sarcomatoid and biphasic. Rarer types are desmoplastic, small cell, lymphohistiocytoid, decidual and undifferentiated or anaplastic.
— epithelial (50%):
    tubulopapillary
    microglandular
    solid (epithelioid)
    small cell 6%
    pleomorphic (large cell)
    lymphohistiocytoid 1%: aggressive
    deciduoid
    clear cell
    signet ring cell.
— sarcomatoid (15%):
    fibrosarcomatous-like/cellular storiform
    fibrous (desmoplastic) 5–10%