Intramedullary Metastases

 Definition: Metastatic tumors that invade the spinal cord parenchyma (intramedullary compartment), often leading to rapid neurologic deterioration.

 Epidemiology: Very rare: <3% of CNS metastases.

More common in middle-aged to elderly patients.

Often present in patients with widespread systemic cancer.

 Common Primary Tumors: Lung cancer (esp. small-cell and adenocarcinoma) – most frequent.

Breast cancer

Renal cell carcinoma

Lymphoma/leukemia

Melanoma

Occasionally from colorectal or thyroid cancers.

 Pathophysiology: Spread via hematogenous route or CSF dissemination.

Often associated with leptomeningeal carcinomatosis.

Most frequently involve the cervical and thoracic cord.

⚠ Clinical Presentation: Rapidly progressive myelopathy.

Motor weakness, sensory loss, and sphincter dysfunction.

Radicular pain may precede neurological deficits.

Symptoms evolve faster than in primary spinal cord tumors.

 Diagnosis: MRI with contrast: gold standard (shows enhancing intramedullary lesion, possible edema).

CSF analysis: may show malignant cells if leptomeningeal spread.

Biopsy: rarely performed unless primary is unknown or atypical imaging.

 Differential Diagnosis: Intramedullary glioma (astrocytoma, ependymoma)

Demyelinating lesions

Vascular malformations

Infectious myelitis

Radiation myelopathy

 Treatment: Steroids: to reduce edema and inflammation.

Radiotherapy: primary modality, often palliative.

Surgery: rarely indicated, only if diagnosis uncertain or mass effect.

Systemic therapy: if chemosensitive tumor and systemic disease present.

 Prognosis: Poor, median survival ≈ 3–6 months.

Prognosis depends on systemic disease control and neurological status at diagnosis.