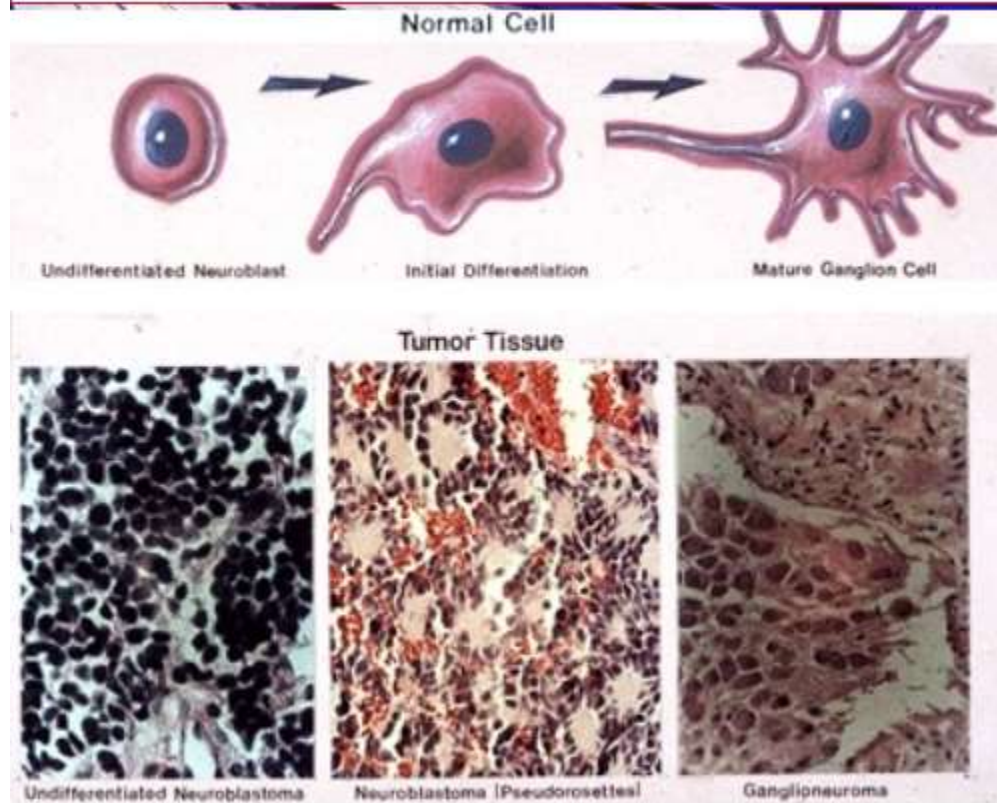


## XXIII. Diseases of the Endocrines

<b>Neuroblastoma</b>	
<b>Adrenal gland:</b>	<ul style="list-style-type: none"> <li>• Is enlarged</li> <li>• Markedly adherent to the kidney</li> <li>• Shows a tumour</li> </ul>
<b>The tumour:</b>	<ul style="list-style-type: none"> <li>• Arising from medulla and obliterating the cortex</li> <li>• Infiltrating the adrenal tissue (malignancy)</li> <li>• Is large</li> <li>• Bulky</li> <li>• Irregular</li> </ul>
<b>Cut surface:</b>	<ul style="list-style-type: none"> <li>• No capsule</li> <li>• Greyish-white</li> <li>• Dark red areas of haemorrhage</li> <li>• Pale yellow areas of necrosis</li> <li>• Is fleshy with chalky white patches of calcification</li> </ul>
<b>Consistence:</b>	<ul style="list-style-type: none"> <li>• Soft (in most parts)</li> </ul>

## Neuroblastoma Differentiation





**NB:**

- Neuroblastoma is a highly malignant tumour which usually attains a great size and is often bilateral.
- It occurs chiefly in children but may occur in adults and occasionally at older ages.

*Spread is rapid and may lead to:*

1. **Pepper syndrome (from right adrenal):**
  - Metastases in: Liver. & retroperitoneal lymph nodes.
2. **Hutchison syndrome (from left adrenal):**
  - Metastases in:
    - Skull-bones.
    - Orbit.
    - Other bones and organs (secondaries).

The most common sites of metastasis are

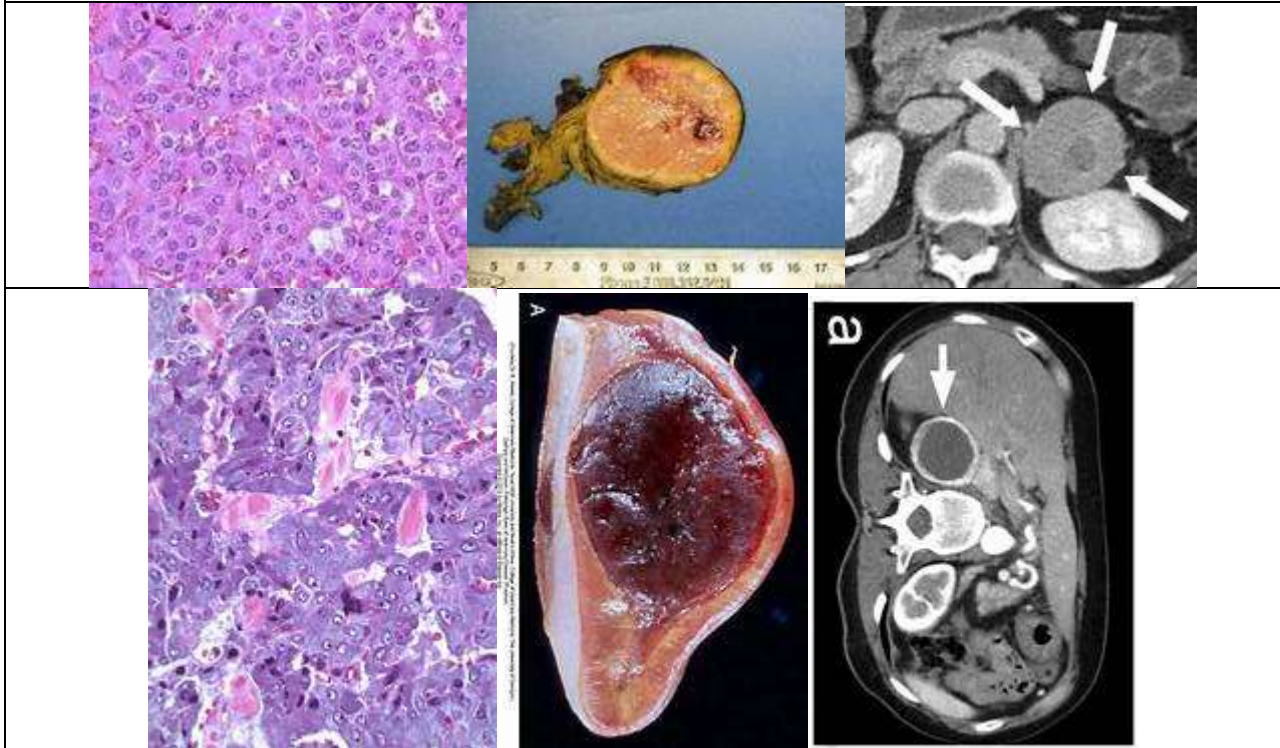
- regional or distant lymph nodes
- long bones and skull
- bone marrow
- Liver
- skin
- Lung and brain metastases are rare, occurring in >3% of cases.



**N.B.2:**

**Tumours of adrenal medulla:**

1. **Neuroblastoma.**
2. **Ganglioneuroma: Usually innocent.**
3. **Pheochromocytoma (chromaffin cell tumour): Usually innocent and unilateral (may be malignant & bilateral).**
  - May produce paroxysmal arterial hypertension.
  - Hypersecretion of adrenalin (adrenalism).
  - Hypersecretion of noradrenalin (noradrenalism).



# PHEOCHROMOCYTOMA



Tumor of the Medulla of the Adrenal Gland

Medulla secrete Catecholamine  
**\*Epinephrine**  
**\*Norepinephrine**  
 Hormonal Secretion is **paroxysmal**



Recorded with SCREENCAST MATE

## Symptoms

**Paroxysmal attacks**  
 (They come and go)

**Hypertension**  
**Headache**  
**Diaphoresis**  
**Palpitations**



## Diagnosis

#Breakdown products of Epinephrine and Norepinephrine  
**In the Urine**

**\*Vanillyl Mandelic Acid (VMA)**  
**\*Homo Vanillic Acid**



**CT or MRI of the Abdomen**  
 to localize the **Tumor**

## Treatment

**\*Stabilize with Alpha Blockers**  
**Phenoxybenzamine**  
**\*Treatment of choice**  
**Surgical removal of The tumor**



## Clinical Features

- Headaches
- Sweating attacks
- Palpitations and tachycardia
- Hypertension, sustained or paroxysmal
- Anxiety and panic attacks
- Pallor
- Nausea
- Abdominal pain
- Weakness
- Weight loss
- Paradoxical response to antihypertensive drugs
- Polyuria and polydipsia
- Constipation
- Orthostatic hypotension
- Dilated cardiomyopathy
- Erythrocytosis
- Elevated blood sugar
- Hypercalcemia

