

Defective bone remodelling → Osteoporosis → ↓ Bone Mineral Density, Bone pores → Normal Bone Density/Cells
 - Most common Disease, Females are most affected - ^{mineralization} Osteoporosis

i) Primary (Idiopathic)

- 1) Post Menopausal → ↓ Oestrogen → ↑ Osteoclasts
- 2) Senile → ↓ Osteoblasts

ii) Secondary → To other disease

- i) Genetic → Oestrogen receptor mutation
- ii) Endocrine → Hypoparathyroidism, Hyperthyroidism, Hyperparathyroidism, Cushing Syndrome
- iii) GIT → IBD, Celiac disease
- iv) Autoimmune → RA, Ankylosing spondylitis, IBD
- v) Drugs → Glucocorticoids
- vi) Lungs → COPD, Cystic Fibrosis
- vii) Others → Smoking, Alcohol, Physical Inactivity
- viii) Kidney → Chronic liver Failure
- ix) Glucocorticoid induced osteoporosis

Clinical Features

→ "Fragility fracture" → Fracture from a standing or low height w/o high velocity

↓
 Common in Hip joint, Femoral Neck, D.

Forearm (Colles Fracture) → Distal radius

Vertebral Fractures

→ Kyphosis

Investigation

- 1) Dual X-ray absorptiometry (DXA) of hips & lumbar spine.
↳ Bone Mineral Density
Normal - $> +1$ to > 0.5
osteopenia - ± 0.5 to $- 2.5$
osteoporosis - $> - 2.5$ } T Score
- 2) Get up and go Test.

Secondary

- 1) Serum Calcium & Phosphate $\rightarrow$ Hyperparathyroid
PTH
- 2) Thyroid Function Test - Thyroid.
- 3) Testosterone & Gonadotrophins $\rightarrow$ Hypogonadism-
Estrogen
- 4) IBD $\rightarrow$ Faecal Calprotectin.
- 5) Celiac Disease $\rightarrow$ Anti tTG.
- 6) A.R A factor -
- 7) Liver Function test and albumin.
- 8) Urea, Creatinine & electrolyte.
- 9) Inflammation - ESR & CRP.