Osteoarthritis:

Osteoarthritis (OA) is a degenerative joint disease, occurring primarily in older people and characterized by erosion of the articular cartilage, hypertrophy of bone at the margins (i.e., osteophytes), subchondral sclerosis

Epidemiology: The prevalence rises progressively with age. There are major ethnic differences in susceptibility for OA.

OA may be classified as primary or secondary. Primary OA is the most common type and has no identifiable etiology or predisposing cause. Secondary OA, the most common causes of secondary OA are metabolic conditions (e.g., calcium crystal deposition, hemochromatosis, and acromegaly), anatomic factors (e.g., leg length inequality, congenital hip dislocation), traumatic events or the sequelae of inflammatory disorders.

Pathophysiology:

OA is a complex disorder with both genetic and environmental components.

There is a strong association between obesity and OA.

Patients with OA are partially protected from developing osteoporosis and vice versa.

Clinical features

OA has a characteristic distribution, mainly targeting the hips, knees, PIP and DIP joints of the hands, neck and lumbar spine

The main presenting symptoms are pain and functional restriction.

Pain: Insidious onset over months or years

• Variable or intermittent nature over time (‘good days, bad days’)

• Mainly related to movement and weight-bearing, relieved by rest

• Only brief (< 15 mins) morning stiffness ‘gelling’

Clinical signs

• Restricted movement due to capsular thickening or blocking by osteophyte

• Palpable, sometimes audible, coarse crepitus due to rough articular surfaces

• Bony swelling around joint margins

• Deformity, usually without instability

• Joint-line or periarticular tenderness

• Muscle weakness and wasting

The correlation between the presence of structural change, as assessed by imaging, and symptoms such as pain and disability varies markedly according to site.

Generalized nodal OA

Stiffness and swelling of one or more PIP and DIP joints of the hands from the age of about 40 years onwards.

Heberden's (DIP) and Bouchard's (PIP) nodes

Involvement of the first CMC joint is also common, leading to pain on trying to open bottles and jars. Clinically, it may be detected by the presence of crepitus on joint movement, and squaring of the thumb base.

Generalized nodal OA has a very strong genetic component

People with nodal OA are also at increased risk of OA at other sites, especially the knee.

Knee OA

At the knee, OA principally targets the patello-femoral and medial tibio-femoral.

Patello-femoral pain is usually worse going up and down stairs or inclines

Posterior knee pain suggests the presence of a complicating popliteal cyst (Baker's cyst).

Local examination findings may include:

• A jerky, asymmetric (antalgic) gait with less time weight bearing on the painful side

• A varus or, less commonly, valgus and/or a fixed flexion deformity

• Joint-line and/or periarticular tenderness

- weakness and wasting of the quadriceps muscle
- restricted flexion and extension with coarse crepitus

• Bony swelling around the joint line.

Hip OA

Hip OA most commonly targets the superior aspect of the Joint. poor prognosis

The less common central (medial) OA shows more central cartilage loss and is largely confined to women. It has a better prognosis than superior hip OA and progression to axial migration of the femoral head is uncommon.

Examination may reveal:

• An antalgic gait

• Weakness and wasting of quadriceps and gluteal muscles

• Pain and restriction of internal rotation with the hip flexed – the earliest and most sensitive sign of hip OA; other movements may subsequently be restricted

• Anterior groin tenderness just lateral to the femoral pulse

• Ipsilateral leg shortening with severe joint attrition and superior femoral migration.

Spine OA

The cervical and lumbar spine are the sites most often targeted by OA, where it is referred to as cervical spondylosis and lumbar spondylosis. The typical presentation is with pain localised to the low back region or the neck, although radiation of pain to the arms, buttocks and legs may also occur due to nerve root compression. The pain is typically relieved by rest and worse on movement. On physical examination, the range of movement may be limited and loss of lumbar lordosis is typical. The straight leg-raising test or femoral stretch test may be positive and neurological signs

Investigations

A plain X-ray: Non-weight-bearing postero-anterior views of the pelvis are adequate for assessing hip OA. Patients with suspected knee OA should have standing anteroposterior X-rays taken to assess tibio-femoral cartilage loss, and a flexed skyline view to assess patello-femoral involvement

If nerve root compression or spinal stenosis is suspected, MRI should be performed

Synovial fluid aspirated from an affected joint is viscous with a low cell count

Unexplained early-onset OA requires additional investigation, guided by the suspected underlying condition

Management

Education: The patent should be informed that established structural changes are permanent and that, although a cure is not possible at present, pain and function can often be improved

Lifestyle advice

Weight loss

Strengthening and aerobic exercises

Shock-absorbing footwear

Avoiding Painful Joint Loading

Non-pharmacological therapy

Acupuncture and transcutaneous electrical nerve stimulation

Pharmacological therapy

If symptoms do not respond to non-pharmacological measures, paracetamol should be tried. Addition of a topical NSAID. Oral NSAIDs should be considered in patients who remain Symptomatic

Strong opiates may occasionally be required. Antineuropathic drugs, such as amitriptyline, gabapentin and pregabalin, are sometimes used in patients with symptoms that are difficult to control

Intra-articular injections

Intra-articular glucocorticoid injections are effective in the treatment of knee OA and are also used for symptomatic relief in the treatment of OA

Intra-articular injections of hyaluronic acid are effective in knee OA but the treatment is expensive and the effect short-lived. In the UK they have not been considered to be cost-effective by NICE

Surgery

Surgery should be considered for patients with OA whose symptoms and functional impairment impact significantly on their quality of life despite optimal medical therapy and lifestyle advice