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Treatment of Osteoporotic Vertebral Fractures: Diagnostic and Therapeutic Considerations

Background

Osteoporotic vertebral fractures (OVFs) are among the most frequent and serious complications of osteoporosis, often occurring without a clearly defined traumatic event. Timely diagnosis and appropriate management are essential to prevent chronic pain, spinal deformity, and loss of function.

Methods

Initial diagnosis is based on clinical examination and spinal radiographs in two projections. In cases of inconclusive radiographs or for surgical planning, computed tomography (CT) provides greater detail of fracture morphology. Magnetic resonance imaging (MRI) is indicated when neurological deficits are present or to assess fracture age and exclude other pathologies (e.g., metastases, infection). If the aetiology remains uncertain, additional evaluation is necessary to confirm primary osteoporosis.

Results

For classification and treatment decision-making, the scoring system of the German Society for Orthopaedics and Trauma (DGOU) offers a structured approach to evaluate fracture stability and guide therapeutic strategy. Most OVFs are treated conservatively with analgesia, activity modification, orthotic support, and physical therapy. Regular clinical and radiological follow-up is required. Indications for minimally invasive cement augmentation techniques (vertebroplasty or balloon kyphoplasty) include severe acute pain unresponsive to conservative therapy, pain persisting for more than 6–12 weeks, or progressive kyphotic deformity. In cases involving significant kyphosis, neurological compromise, or spinal canal stenosis, surgical stabilization is indicated. Due to poor bone quality, screw fixation often requires cement augmentation and/or multilevel constructs to ensure adequate stability.

Conclusion

Effective management of OVFs relies on accurate imaging, appropriate use of classification systems (DGOU), and a stepwise therapeutic approach. Combining conservative, interventional, and surgical options tailored to the clinical and radiological presentation leads to improved patient outcomes.

Keywords

writing, template, sixth, edition, self-discipline, good

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Biography

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Fields of Interest: Spinal, pelvic, and hip trauma, with a particular focus on reconstructive hip and pelvic surgery and arthroplasty.

ATLS-certified instructor with a strong clinical and academic background in trauma surgery. My primary research and clinical interests lie in complex reconstructive procedures of the hip and pelvis. Currently pursuing a PhD, I am actively involved in several research studies, serving as Principal Investigator on one of them.