**Biopsy in MSK**

DK Filippiadis,

Robertson and Ball performed first attempt of percutaneous biopsy of the spine in the mid 1930s using a posterolateral approach. Ever since technique has been refined as imaging guidance has evolved and biopsy systems have become more sophisticated. Nowadays, percutaneous biopsy of the spine is widely performed for sampling of vertebrae, intervertebral discs and paraspinal soft tissues.

Indications for biopsy in the spine include sampling of a neoplasm for characterization, spondylodiscitis fro diagnosis and culture as well as metabolic bone disease. Percutaneous biopsy in the spine under imaging guidance is governed by an overall accuracy ranging from 80-95%. Higher accuracy rates are associated with osteolytic lesions whilst spondylodiscitis and sclerotic lesions are associated with lower accuracy rates. Complications of percutaneous biopsy in the spine include infection, hemorrhage, nerve root damage and pneumothorax. In general complications are more frequent in thoracic and cervical spine than in the lumbar spine. Paraspinal soft tissue masses can be biopsied with 18G soft tissue biopsy needle. Vertebral lesions are biopsied with 17G or larger bone biopsy systems (most preferably co-axial). Approaches in the lumbar spine include transpedicular or posterolateral extrapedicular trajectories. In the thoracic spine approaches include  transpedicular or posterolateral extrapedicular trajectories through the costotransverse joint, the costovertebral groove or intercostal approach. In the cervical spine anterolateral approach is preferred in mid and lower cervical levels whilst trans-oral approach is usually preferred for C1 and C2 levels. Occasionally posterolateral approaches are performed in the cervical spine as well.

Percutaneous biopsy is a safe and effective technique for diagnosis of lesions in the spine. It is important to maximize the technique's diagnostic yield by using large diameter biopsy system. In case of sampling suspected neoplasia the spine surgeon should be advised for the needle trajectory in order to be excluded in a potential future surgical removal.