SUMMARY AND CONCLUSION

Post-operative back pain and leg radiculopathy are non specific presentations of recurrent symptoms after lumbar disc operation in what is called failed back surgery syndrome (FBSS). The proper diagnosis of the causes of symptoms recurrence is very important and different methods are used for it.

The most common causes of FBSS include: epidural fibrosis, recurrent disc herniation, lateral stenosis, arachnoiditis and pseudomeningocoele. MR imaging plays a vital role in the evaluation of these patients. The anatomic information provided by imaging study together with the patients clinical presentation allow the choice of the proper surgical procedure if indicated. This should in turn diminish the number of cases of FBSS as diagnostic failure leads to surgical failure.

Although clinical assessment of the patients presenting with FBSS is non specific . the clinical presentation and time of appearance of recurrent symptoms may be helpful in some casses to reach accurate diagnosis as in the following :

* Early and persistent post operative radicular pain within the first two weeks, post operative haematoma at the site of surgery can be suspected.

MRI can diagnose the condition at this stage accurately due to its tissue characterisation .

* In cases of post operative infection specially discitis the clinical findings include : severe recurrent back pain after relief of the initial symptoms. Recurrent pain is frequently accompanied by decreased back motion, muscle spasm and positive straight leg raising test. Only one third of these patients will have a substantial fever and mild leukocytosis which are unreliable indicators. Although elevation of ESR is uniformly present in discitis this test is non specific.

* Patients with arachnoiditis usually present with pain radiating to the extremities in which spinal surgery is the most common preciptating factors.

* Patients with post laminectomy pseudomeningocoele may complain of low back pain, some of them have radiating pain to one or both legs with focal swelling in the back at the site of operation . pseudomeningocoele should be suspected if the surgeon is aware of any injury to the dura during the operation in a patient developing low back pain with radiculopathy after initial successful surgery .

MRI is the modality of choice for imaging the postoperative spine, the multiplaner imaging capability, superior soft tissue contrast resolution and excellent tissue characterization are their major advantages, so it can

diagnose all causes of failed back surgery syndrome especially with enhanced MRI by Gd-DTPA as the non-enhanced MRI has been proved to be equal to enhanced CT. in its diagnostic value of differentiation between disc and scar.

Enhanced MRI is needed to reach accurate diagnosis and differentiation of recurrent disc herniation from extradural fibrosis and/or the presence of both together. Also, it gives accurate, sensitive and early diagnosis of post-operative discitis and infection and can differentiate it from degenerative disc disease and neoplasia. Moreover, enhanced MRI study can diagnose post-operative: Arachnoiditis, bony stenosis, spur formation or bony overgrowth as well as iatrogenic pseudomeningocoele

However, in the early post-operative period up to 6 weeks, the presence of oedema could give false results, as the healing stage following surgery involves many processes that evolve at various rates and to various degrees, with inconstant MR findings that change with time.

The great change in the appearance of the epidural mass, scar , disc and their enhancement pattern occurs in the first 3 months, followed by gradual stabilization from 2-12 months after surgery. Epidural mass, nerve root enhancement, findings suggestive of herniated disc and even discitis may all be a part of the normal early postoperative change.

Symptoms often demand imaging studies and complications such as massive haemorrhage, pseudomeningocoele, or abscesses along the operative tract may be idenified.

Discitis usually can be recognized with the aid of comparison preoperative images and postoperative ESR.However, when abnormal findings are confined to the epidural space and site of excised disc fragment, extreme caution must be exercised when interpreting a single study. Currently there are no reliable criteria to differentiate an extruded fragment from haematoma or immature scar or to differentiate an extruded fragment that will persist from one that will resorb. These findings are best interpreted by comparison with preoperative MR images and perhaps images at two postoperative times.

So, for patients 6 weeks or more post surgery, sagittal and axial T1weighted MR imaging before and after administration of Gd-DTPA is an effective method of evaluating post-operative spine, but in case of clinical suspicion of inflammatory process as discitis and arachnoiditis T2 weighted images are also done.

Radiologically the most important and difficult challenge in post-operative lumbar spinal imaging is to distinguish an epidural scar from recurrent or residual herniated disc material.

The important criteria for evaluation of scar versus disc in the postoperative patient can be summarized as follows:

1.Scar tissue enhances immediately after injection, irrespective of the time since surgery.

2.Disc material does not enhance immediately after injection.

3.Smoothly marginated, polypoid, anterior epidural mass is disc.

4.Scar can have mass effect and may be contiguous to the disc space.

Finally we can conclude that MR imaging is a powerful diagnostic tool for patients with the failed back surgery syndrome. It displays the changes caused by surgical intervention as well as associated postoperative findings, many of which cause the FBSS.

MRI can differentiates recurrent disc herniation from postoperative scar formation with a greater degree of confidence than other imaging modalities because re-operation on scar tissue will lead to more scar formation which will worsen the patient states. MRI can determine clinically important functional instability when CT & conventional radiography are inconclusive. This feature can be particularly helpful in evaluating the patient with multiple lumbar surgeries. So MRI permits unrivalled assessment of the postoperative spine in FBSS this enables the surgeon to make accurate decisions regarding re-operation.