

### Management of low risk patients

1. A Patient presents with a recent gradual onset of **local** low back pain without a preceding injury

Explanations you may find useful:

“This is simple low back pain which is pain that changes in response to movement and posture”

“This type of back pain is very common and can come on when the back gets stiff and de – conditioned”

“8/10 adults at sometime in their lives will experience your type of back pain, nowadays it is more abnormal not to get low back pain than to get it, I can see you are in a lot of pain but from my assessment I cannot see that the pain is due to a **medically serious** or is a **structurally serious problem**”

2. A Patient presents with a sudden onset of **local** low back pain with a preceding injury, e.g. lifting a box

Explanations for this will be similar to patient explanations above; you may want to add a term such as muscle strain or ligament sprain, just like they would get with an ankle injury. You can explain to the patient it may be helpful to limp on a sprained ankle for a couple of days but they should have confidence in getting the ankle moving as quickly as possible. The back is no different. Avoid terms like “slipped disc” or “disc prolapse” with these patients, as it runs the risk of the patient becoming medicalised.

It is very important to have repeated consistent messages across the whole pathway for patients with local low back pain not only the low risk patients but also the medium and high risk.

It is important to legitimise the patient’s pain, but despite the amount of pain they experience explain to them it is highly unlikely to be anything medically concerning/serious. Patients though may be very concerned, it is therefore important to ask what they are concerned about to rationalise any misguided beliefs. The STarT questionnaire may give you the opportunity to explore this as it asks about worrying thoughts. Positive messages need to be given from the outset, including the high likelihood that symptoms will improve.

Even with moderate/high risk, still be as positive as possible, advise to remain active and remain at work or return to work as soon as possible if appropriate. But state you are referring the patient for further treatment to get them back active.

It is important to encourage the patient restore the movement they have lost in their back as quickly as possible, in the Arthritis research UK booklets on “back pain” and “keep moving” are helpful to convey this message or for those on the internet - [www.arthritisresearchuk.org/arthritis-information/common-pain/back-pain.aspx](http://www.arthritisresearchuk.org/arthritis-information/common-pain/back-pain.aspx) Furthermore a very helpful evidence based video is available for patients to watch on line at: [www.youtube.com/watch?feature=player\\_embedded&v=ZumxS6DX-5o](http://www.youtube.com/watch?feature=player_embedded&v=ZumxS6DX-5o)

Instead of informing the patient they have “wear and tear” explain it is a “tear, flare and repair” process. X-ray changes are a normal part of the aging process and OA should be thought of more in terms of a chronic pain syndrome, rather than a disease defined by the pathological changes in the joint or indeed on x- ray.

NICE defines it as a syndrome of “joint pain accompanied by varying degrees of functional limitation and reduced quality of life.” The impact of OA is best understood using a biopsychosocial rather than a disease model, as there is no direct correlation between the disease process seen on imaging and symptoms and the impact this has on the patient’s quality of life.

OA has multiple concurrent aetiological causes including biomechanical factors, inflammatory responses, biochemical mediators and bone responses. Patients often tell me they have been told they have a “crumbling spine” or “progressive degenerative disc disease.” Many people believe that OA is inevitably progressive and disabling and that “nothing can be done” it is important to paint a positive prognostic picture for patient’s and not to confirm these fears as this can have significant psychological impact on a patient’s condition perception, and will significantly hamper rehabilitative efforts.

As discussed there is little correlation between the amount of degenerative change seen on x-ray and pain. Certainly the back can become stiffer and patient can lose function of the back as pain and stiffness “feed” each other in a vicious cycle:

Stiffness = Painful to move = Patient moves less = more stiffness = more pain. This results in increasing impact on the patient’s quality of life.

### **The value of imaging therefore:**

#### ‘Abnormal’ findings are common

- Positive findings, such as herniated disks, are common in asymptomatic people (Jensen, Brant-Zawadzki, Obuchowski, Modic, Malkasian & Ross, 1994; Boden, Davis, Dina, Patronas & Wiesel, 1990; Jarvik, Hollingworth, Heagerty, Haynor, Deyo, 2001).

- There is a high prevalence of FJ OA in the community (Kalichman, Li, Kim, Guermazi, Berkin, O'Donnell, Hoffmann, Cole & Hunter. 2008).
- Among asymptomatic persons 60 years or older, 36% had a herniated disc, 21% had spinal stenosis, and over 90% had a degenerated or bulging disc (Boden, Davis, Dina, Patronas & Wiesel, 1990).

### 'Abnormal' findings on imaging do not predict the development of symptoms

- MRIs at baseline (no symptoms of LBP) and then a repeat MRI if a patient developed an episode of LBP. The sample included 200 patients followed for 5 years. In the patients that went on to develop clinically serious LBP during the subsequent 5 years, 84% had unchanged or improved lumbar imaging abnormalities findings after symptoms developed. Furthermore, at baseline (no LBP), there was a high incidence of what in most studies would appear to be potentially serious pathology: nearly 50% had either disc protrusion or extrusion, nearly 30% had annular fissures, and there was potential root irritation in 22%. Thus over 90% of individuals had imaging findings without any significant low back symptoms, indicating that the association between such findings and symptoms is tenuous (Carragee, Alamin, Cheng, Franklin, van den Haak & Hurwitz, 2006)
- 3-year follow-up of a cohort of patients that had no LBP at baseline at the Veteran's Administration Hospital, reported that only 2 MRI findings, canal stenosis and nerve root contact, predicted future episodes of LBP. In fact, a history of depression was more predictive than either of these 2 MRI findings (Jarvik, Hollingworth, Heagerty, Haynor, Boyko & Deyo, 2005).
- The findings on magnetic resonance scans were not predictive of the development or duration of low-back pain (Borenstein, O'Mara, Boden, Lauerma, Jacobson, Platenberg, Schellinger & Wiesel, 2001).

### There is a poor correlation between symptoms and 'abnormal' findings on imaging

- This study did not reveal a significant association between the observation of spondylolysis on CT and the occurrence of LBP, suggesting that the condition does not seem to represent a major cause of LBP in the general population (Kalichman, Kim, Li, Guermazi, Berkin & Hunter, 2009).
- We failed to find an association between FJ OA, identified by multidetector CT, at any spinal level and LBP in a community-based study population. (Kalichman, Li, Kim, Guermazi, Berkin, O'Donnell, Hoffmann, Cole & Hunter. 2008).
- Studies using x-rays, CT scans, and MRI's have consistently shown that the presence of one or more of these 'problems' is unrelated to whether or not someone experiences chronic pain (Scnabel, Pogatzki-Zahn, 2010; Borsteiin, O'Mara, Boden, lau, Berman, Jacobson, Platenberg, Schellinger & Weisel, 2001; Beattie & Meyers, 1998).
- Bulged discs almost always heal (*reabsorb*) on their own (Autio, Karppinen, Niinimäki, Ojala, Kurunlahti, Haapea, Vanharanta & Tervonen, 2006; Benoist, 2002; Orief, Orz, Attia & Almusrea,

2011; Gezici & Ergün, 2009), and even when they don't, pain still improves (Iwabuchi, Murakami, Ara, Otani, Kikuchi, 2010).

### Imaging does not improve clinical outcomes, it may make it worse

- Six randomized trials, involving a total of 1804 patients from primary care with primarily acute or subacute LBP without features suggesting a serious underlying disease, compared some form of lumbar spine imaging (radiography, MRI, or CT) with none. In these studies, imaging was not associated with an advantage in subsequent pain, function, quality of life, or overall improvement (*Djais & Kalim, 2005; Gilbert, Grant, Gillan et al. 2004; Kendrick, Fielding, Bentley et al, 2001; Kerry, Hilton, Dundas, Rink, Oakeshott, 2002; Modic, Obuchowski, Ross, et al., 2005; Deyo, Diehl, Rosenthal, 1987*).
- Recent meta-analysis of these studies (Chou, Carrino & Deyo, 2009). In fact, for short-term outcomes, trends slightly favored usual care without routine imaging. Furthermore, routine imaging was not associated with psychological benefits, despite some clinicians' perceptions that it might help alleviate patient fear and worry about back pain (Schers, Wensing, Huijsmans, van Tulder & Grol, 2001).
- No evidence that selecting therapeutic interventions based on the presence of common imaging findings in persons with nonradicular LBP improves outcomes (*Chou, Qaseem, Snow, et al., 2007*).

### MRI may lead to unnecessarily medicalization

- There is evidence that telling patients that they have an "imaging abnormality" has negative effects related to labelling (Fisher & Welch, 1999; Gilbert, Grant, Gillan, et al. 2004; Kendrick, Fielding, Bentley, Kerlake, Miller & Pringle, 2001).
- MRIs on 246 patients with acute LBP or sciatica and subsequently randomized them to receive the results of the image or not. At 1 year, both groups had similar clinical outcomes; however, self-rated general health improved significantly more in the group that remained blind to the results of their MRI (Ash, Modic, Obuchowski, Ross, Brant-Zawadzki & Grooff, 2008).
- MRI may facilitate the "medicalization" of LBP, due to its visually exquisite depiction of pathoanatomy. In fact, it is questionable whether the term pathoanatomy or abnormality appropriately describes what could be considered non pathological or normal, age-related or degenerative changes (Breslau & Seidenwurm, 2000).
- MRI scans for reassurance purposes – Research tells us that they do not reassure patients in fact patients report more pain, worse outcomes, seek more medical help BUT they are more satisfied with their care experience.

### Imaging may expose patients to unnecessary radiation

- The potential harm associated with overimaging of lumbar spine in patients with LBP includes radiation exposure (lumbar radiographs and CT) (Berrington de Gonzalez, Mahesh, Kim, et al. 2007; Fazel, Krumholz, Wang, et al. 2009).

- In 2007, 2.2 million lumbar CT scans were performed in the US. Based on the radiation exposure patients received, these CT scans were projected to cause 1200 additional future cancers. (Berrington de Gonzalez, Mahesh, Kim, et al., 2007).
- It is generally believed that at least a third of these scans were not medically necessary (Brenner & Hall, 2007).
- Lumbar spine radiographs provide an estimated radiation dose equivalent to six months of background radiation (radiation associated with normal daily living). While the risk is considered very low, it does incur a 1 in 100 000 to 1 in 10 000 risk of fatal cancer. (Radiological Society of North America, American College of Radiology. Radiation Exposure in X-ray and CT Examinations. Available at: [http://www.radiologyinfo.org/en/safety/index.cfm?pg=sfty\\_xray](http://www.radiologyinfo.org/en/safety/index.cfm?pg=sfty_xray). Accessed September 29, 2011).
- The average radiation exposure from lumbar radiography is 75 times higher than that of a chest radiograph, which is particularly concerning in young women, given the difficulty in effectively shielding the gonads (Fazel, Krumholz, Wang, et al., 2009).
- It is estimated that female gonadal radiation from lumbar radiography is equivalent to a daily chest radiograph for several years (Jarvik & Deyo, 2002).
- Exposure to iodinated contrast (CT) (Amato, Lizio, Settineri, Di Pasquale, Salamone & Pandolfo, 2010).

### Imaging can lead to an increased risk of surgery

- Imaging (MRI) leads to an increased risk of surgery (Jarvik, Hollingworth, Martin et al. 2003; Lurie, Birkmeyer & Weinstein. 2003).
- There is a strong association between rates of advanced spine imaging and rates of surgery (Verrilli & Welch, 1996).
- The use of MRI versus a lumbar radiograph early in the course of an episode of LBP resulted in a 3-fold increase in surgical rates, with no improvements in outcomes in the subsequent year (Jarvik, Hollingworth, Martin, et al., 2003).

## Primary and metastatic spinal cancer

Previous history of cancer (last 20 years) 

**Especially: Breast, Lung and Prostate**

Age of onset <20 years >50 years 

**Unexplained weight loss**

>10% in 3-6/12 period 

5-10% in 3/12 period 

<5% in 3/12 period 

**Area of spinal pain**

Thoracic (70% of spinal cancers) 

Lumbar (20% of spinal cancers)

Cervical (7% of spinal cancers)

Sacrum (4% of spinal cancers)

Severe night pain precluding sleep 

Constant progressive pain 

Systemically unwell 

Disturbed gait/heavy legs/odd legs 

Smoker 

### **Key facts primary spinal cancer**

- There are approximately 4500 primary tumors of the CNS in the UK each year, mainly of the brain
- There are approximately 4000 cases of Myeloma in UK each year
- There are less than 500 cases in the UK per year of all the other groups of primary bone cancer.

### **Key facts spinal metastasis:**

#### **Breast cancer**

- Most common cancer - 46,000 diagnosed each year
- 80% over the age of 50
- Metastatic breast cancer is most common in the bone

#### **Lung cancer**

- 38,000 diagnosed each year
- 85% over age of 60

#### **Prostate cancer**

- 34,000 diagnosed each year
- >50 years of age
- 50% of men over 50 years have some cancer cells
- 80% of men over 80 years have some cancer cells
- Most cells grow slowly so don't cause problems
- 10% of males will have metastatic cancer before the primary is identified, usual site is the spine

### **Overview**

- The spine is the third most common site for primary cancers to metastasize to behind the lung and liver.
- Breast, lung, and prostate cancer are responsible for about 80% of bone metastases
- About 70% of bone metastases occur in axial skeleton

- Metastases to the spinal column occur in 3–5% of all patients with cancer (but those with breast, prostate or lung cancer, the incidence may be as high as 19%)

This would therefore account for approximately:

- 8740 cases of spinal metastasis from breast cancer per year
- 7220 cases of spinal metastasis from lung cancer per year
- 6460 cases of spinal metastasis from prostate cancer per year

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