1. Patients with symptoms suggestive of spinal cord compression, particularly severe back or root pain [1] should be investigated urgently with whole spine MRI to define sites and levels of compression accurately. Multiple levels of compression are seen in up to one-third of patients.[2-4]

2. Ideally all patients should have histological, cytological or biochemical diagnosis of malignancy before commencing radiotherapy. However in patients with a poor performance status and widespread disease, clinical judgement should be used to decide whether radiotherapy without a confirmed diagnosis of cancer is in the patient’s best interest.

3. On clinical suspicion of MSCC or once a diagnosis has been established, all patients should be started on steroids; UK convention is to give dexamethasone 16 mg daily. There is evidence from one randomised trial that higher initial doses of 96 mg are superior to no steroids (level 1+) [5]. No dose comparison between 16 mg and higher doses has been undertaken.

4. Systemic Anti-Cancer treatment may be more appropriate than radiotherapy for some malignancies, e.g. lymphomas, plasma-cell tumours, germ cell tumours or untreated small cell cancers.

5. Long term outcome from MSCC depends on the degree of paralysis and overall prognosis from the cancer; with poorer outcomes associated with non-ambulatory status, poor performance status, ≥3 involved vertebrae, presence of other bone metastases, presence of visceral metastases and shorter time to developing motor deficits. Non-breast/prostate/haematological primaries also confer a worse prognosis. (Level 2++) [6-7]

6. Ideally the prognosis of patients should be objectively assessed using validated scores such as the Tokuhashi Score (Level 2++) [7-8]

7. Patients with a good expected prognosis, especially those who are ambulatory, should be discussed with a spinal- or neuro-surgeon to consider spinal decompression and stabilisation surgery followed by radiotherapy. This intervention has shown to improve neurological status and overall survival in patients with MSCC (Level 1++) [9] compared to radiotherapy alone.

8. For good prognosis or ambulatory patients who are not suitable for surgery, urgent radiotherapy should be given before further neurological deterioration. [3-4,7]

9. For poor prognosis or non-ambulatory patients radiotherapy should be considered either to preserve neurological function (in ambulatory patients) or for pain relief only if paraplegia has been established for >24 hours. [3-4,7]

10. Current evidence on dose and fractionation for MSCC largely consists of retrospective series, prospective non-randomised studies looking at several different treatment schedules or prospective RCTs utilising schedules not commonly used in UK, including split course schedules [7, 10-12]
11. The current evidence suggests no benefit for doses higher than 30 Gy in 10 daily fractions. More hypofractionated regimes (8 Gy in a single exposure, 25 Gy in 5 daily fractions) are most commonly used in the UK and are as effective as longer schedules in terms of pain relief, neurological benefit or survival. But there are fewer in-field recurrences with longer schedules and fewer patients treated with longer courses are treated with further radiotherapy to the same area for recurrent MSCC. (Level 2++) [7]

12. Ambulant patients with an expected better prognosis may, therefore, benefit from longer courses of treatment to prevent recurrence and need for retreatment.

13. The SCORAD III prospective RCT is currently recruiting and randomising patients with an expected prognosis of >12 weeks to either a single exposure of 8 Gy or 25 Gy in 5 daily fractions. The results of this trial will inform decisions regarding the optimal schedule in the future. [UKCRN ID 7952]

Recommendations:

For non-ambulant patients or ambulant patients with a poor prognosis:
8 Gy single exposure or 25 Gy in 5 daily fractions prescribed at depth (Grade C)

For ambulant patients with a good prognosis or post-spinal surgery:
30 Gy in 10 daily fractions prescribed at depth (Grade C)

14. There is evidence of the benefit of retreatment after initial benefit from radiotherapy for recurrent MSCC. The absolute maximum retreatment dose has not been established, but a cumulative BED (initial + reirradiation) of 120 Gy₂ appears to be safe and effective. Effect of previous radiation, time to develop motor deficit, presence of visceral metastases and performance status had an impact on effectiveness of repeat treatment but schedule of treatment did not. (Level 2-) [14-15]

Recommendation:
Re-irradiation should be considered for patients with a good performance status, absent or controlled visceral metastases and a slow development of motor deficit.
8 Gy single exposure or 25 Gy in 5 daily fractions prescribed at depth should be considered as long as the cumulative BED is <120 Gy₂ (Grade D)
References:


11. Maranzano E et al. 8 Gy single-dose radiotherapy is effective in metastatic spinal cord compression: Results of a phase III randomized multicentre Italian trial. Radiotherapy Oncol 2009; 93:174-179


13. Rades D et al. Prognostic Factors for Functional Outcome and