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CANCER SUPPORT**



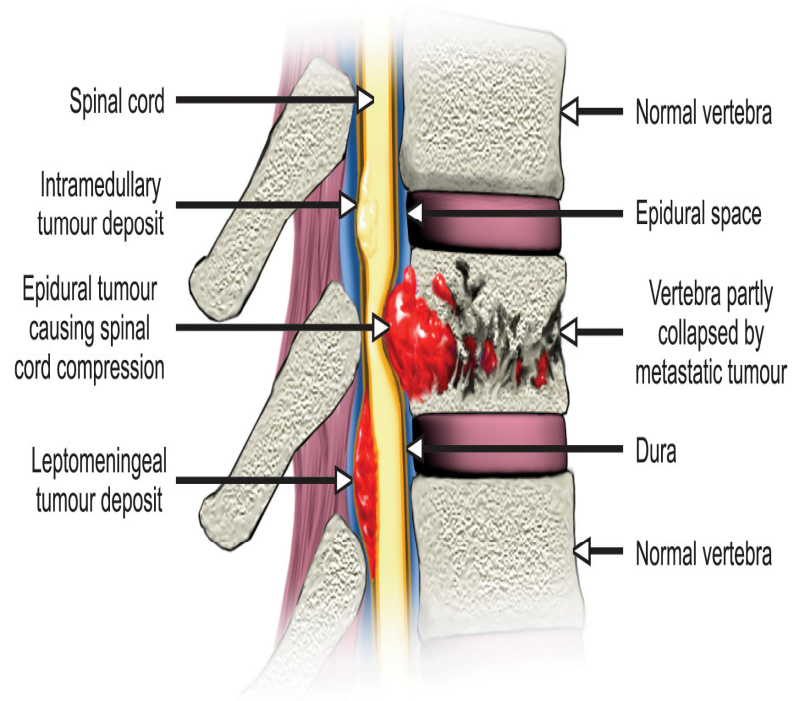
NOSCAN North of Scotland Cancer Network



Suspected malignant cord compression - improving time to diagnosis via a “hotline”

Houston JG, Allan L, Baker L, Dewar J, Eljamel S,
Grant RM, Munro A, Levack P

Background: Malignant Cord Compression



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- 40% cancer - spine metastases
- 5 to 10% patients MCC

MCC

- 66% thoracic region
- 20% first presentation
- 60 % lung, breast, prostate & myeloma

Early diagnosis is important

- risk of paralysis
- difficulty managing pain symptoms
- catheterisation

Patients without neurological deficits but with an epidural tumour touching the spinal cord have an 'impending' MCC

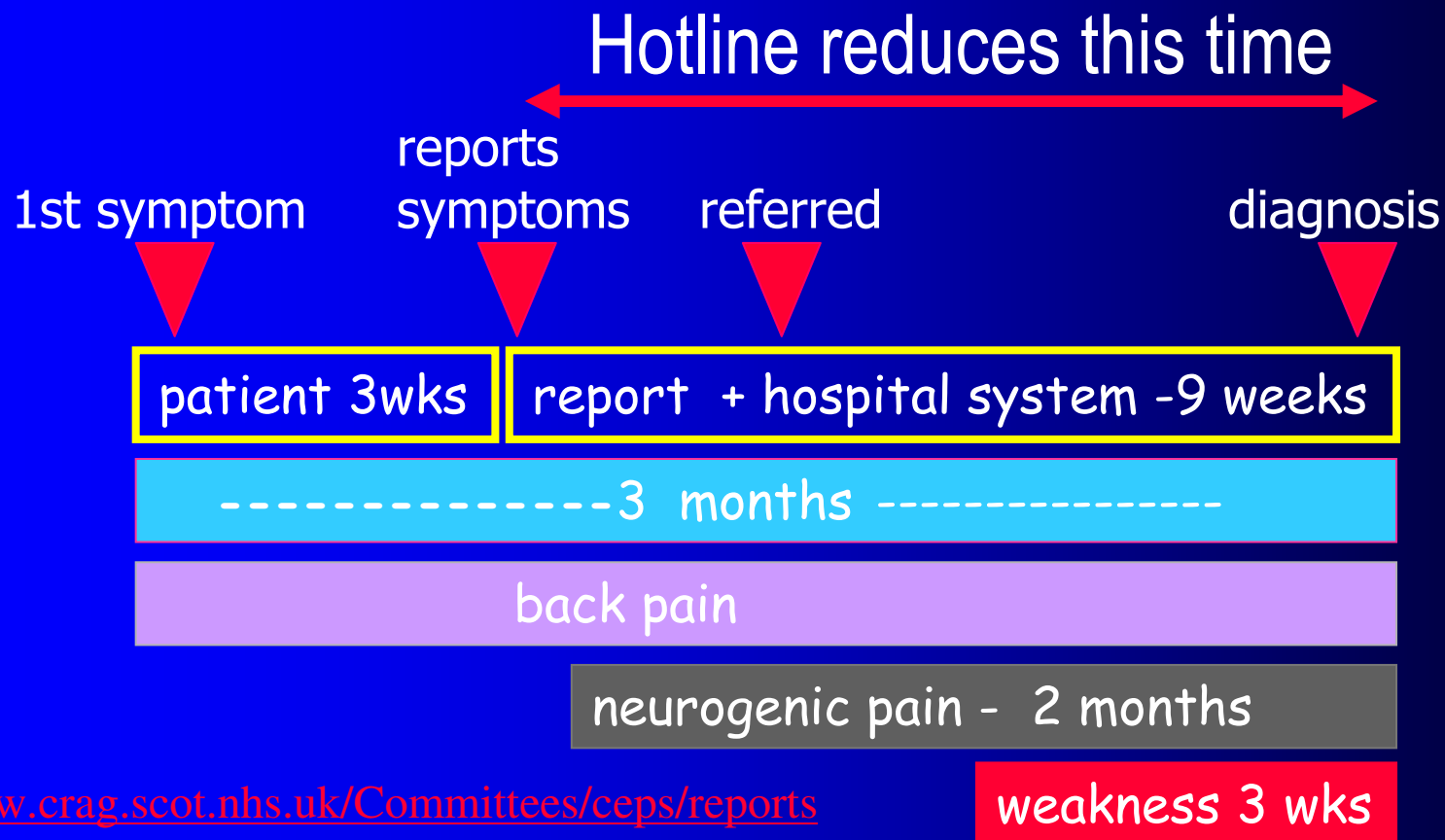
Baines M J (2002) Spinal cord compression - a personal and palliative care perspective. *Clin Oncol* 14:135-8.

Helweg-Larsen S, Sørensen PS, Kreiner S. (2000) Prognostic factors in metastatic spinal cord compression: a prospective study using multivariate analysis of variables influencing survival and gait function in 153 patients. *Int J Radiat Oncol Biol Phys* 46: 1163-9.

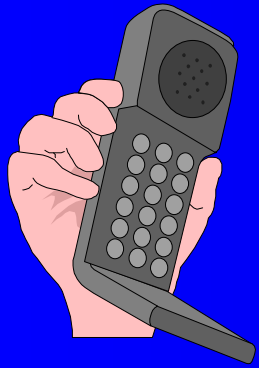
CRAG 2001 audit :

66 days (median)-presentation 1st symptom- diagnosis

48% unable to walk at all at diagnosis



One phone call to Fast Track number



**History of Cancer
(strongly suspect)**

+

**Severe Neurogenic/
Back Pain**

**New difficulty
walking
(late sign)**

Tel: **07960512277** to discuss with a relevant clinician

MRI Referral Criteria

- Patient known to have, or strongly suspected to have, cancer
- New severe nerve root pain (unilateral or bilateral) **and/or** new severe localised vertebral pain, especially thoracic
- *Any* new difficulty walking

MRI service delivery

- **MRI slot “reserved”** at end of list each day
- If not allocated by lunchtime it is used for other in patients or urgent out patients
- **Whole spine scanned** comprising T2 and T1 weighted images+- STIR sag
- **Immediate report** by general MRI consultant radiologist
- **Full radiological report**
(following neuroradiologist opinion)

Tayside Cord Compression Hotline Reporting Proforma

Please complete form whilst reporting study MRI.

Patient CHI

Name

Date of MRI Date of Report

MRI result

Normal	<input type="checkbox"/>
Malignant Cord Compression (MCC)	<input type="checkbox"/>
Malignant nerve root compression	<input type="checkbox"/>
Vertebral metastases only	<input type="checkbox"/>
Non malignant cord compression	<input type="checkbox"/>
Benign degenerative changes	<input type="checkbox"/>

Main level of compression _____

Other levels of compression _____

Nature of MCC:

Paraspinal	<input type="checkbox"/>
Vertebral collapse with thecal sac indentation	<input type="checkbox"/>
Leptomeningeal	<input type="checkbox"/>
Intramedullary	<input type="checkbox"/>

Extent of MCC:

No cord impingement	<input type="checkbox"/>
Cord impingement, no displacement	<input type="checkbox"/>
Cord displacement, no reduction AP diameter	<input type="checkbox"/>
Reduced AP diameter, no cord signal change	<input type="checkbox"/>
Cord signal change	<input type="checkbox"/>

If vertebral collapse, which vertebrae? _____

If nerve root compression, which roots? _____

Other comments? _____

Signed: _____ Date: _____

*If INPATIENT - return form with casenotes
If OUTPATIENT - form will be collected the next day by 'hotline' clinician*

**Immediate report
allows treatment
options to be
discussed without
delay**



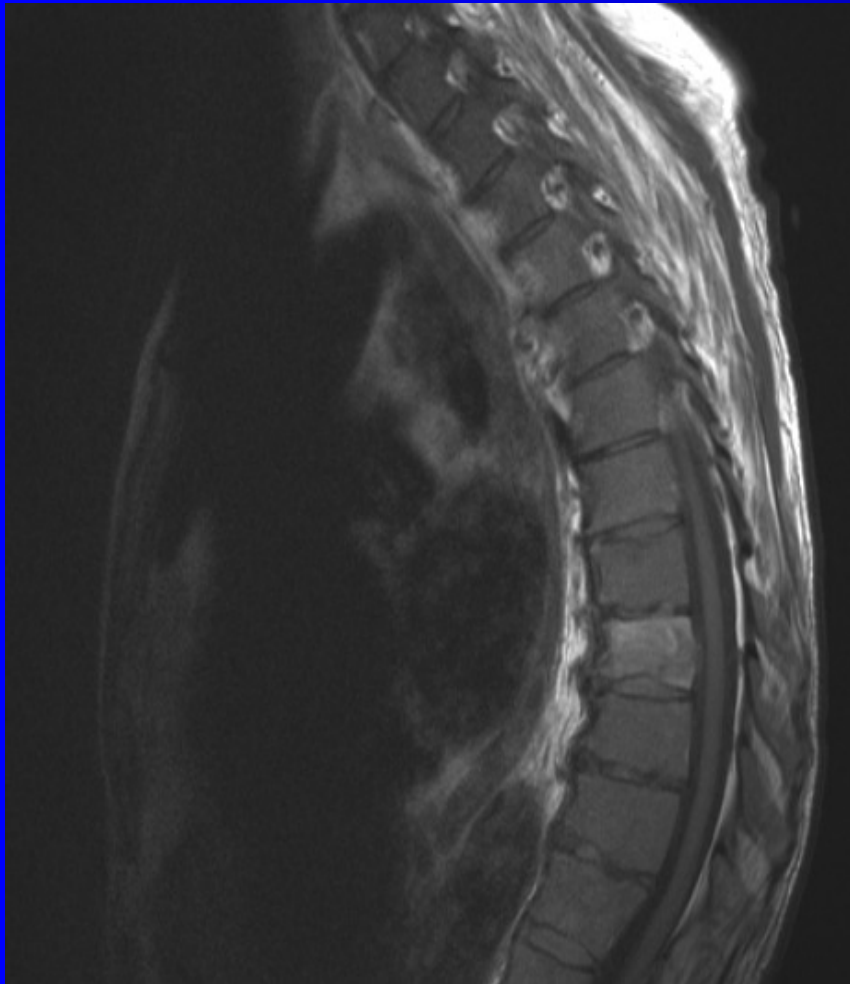
MCC

This is a sagittal T1-weighted MRI scan of the spine. A bright, well-circumscribed mass is visible in the posterior paraspinal region, characteristic of a meningioma. The mass is located at the level of the lower thoracic spine. The surrounding spinal cord and vertebrae are visible, and the overall anatomy is clearly delineated.

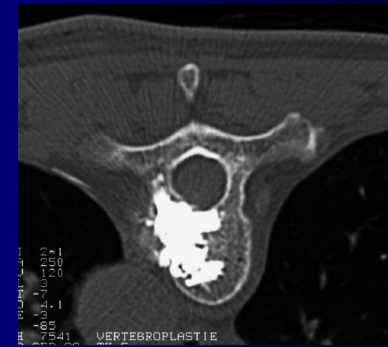
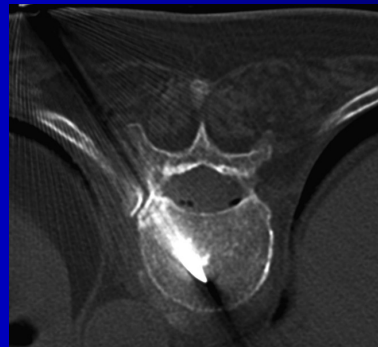
Treated
Radiotherapy

This text indicates that the meningioma shown in the image has been treated with radiotherapy. The mass appears to be stable or slightly reduced in size compared to what might be expected in an untreated case, suggesting a positive response to the treatment.

No MCC but pain - what treatment options?



In cases of metastatic disease in vertebral bodies with no malignant spinal cord compression, radiotherapy, vertebroplasty may provide pain relief.



Study

Single centre, Retrospective audit of 100 MRI ?MCC referrals

Pre Fast Track

Fast Track

Main Endpoints:

1. Time to diagnosis – onset symptom to MRI
2. MRI findings - MCC, metastases, other
3. Mobility at time of diagnosis (MRI)

Comparison of time periods (in days) between the onset of pain (back pain and nerve root pain) to diagnosis.

		MCC hotline			CRAG audit			p-value
		N	median	IQ range	N	median	IQ range	
Overall	Back pain	41	32.0	13.0-101.5	66	89.0	44.8-142.3	0.002
	Root pain	39	28.0	4.0-41.0	66	89.0	44.8-142.3	<0.001
Lung cancer	Back pain	9	18.0	5.0-37.0	13	113.0	62.5-208.5	0.001
	Root pain ¹	9	17.2	6.8-27.7	13	181.2	73.8-288.6	0.012
Non-lung cancer	Back pain	32	41.5	15.8-123.5	53	72.0	35.5-144.0	0.255
	Root pain	30	29.5	5.5-51.3	53	72.0	35.5-144.0	<0.001

A comparison of the first 100 patients referred to the Tayside hotline and those referred over the preceding 2 years for “query cord compression”

	Pre-MCC hotline**			MCC hotline		
	N	%	χ^2	N	%	χ^2
Number of patients referred to MCC	104			100		
Total Number of patients accessing MRI	104			95		
Total Number of patients accessing MRI Detailed results:						
Malignant cord compression (MCC)	18	17.3	-6.4	44	46.3	+7.01
Malignant nerve root compression (MNRC)	5	4.8	-0.1	6	6.3	+0.11
Benign cord compression (BCC)	4	3.9	-0.01	4	4.2	+0.01
Vertebral metastases	17	16.4	-1.56	27	28.4	+1.71
Benign degenerative change/normal	44	42.3	+6.18	14	14.7	-6.77
Other * [often identifying major pathology]	16	15.4	+6.98	0	0.0	-7.64
MCC or MNRC	23	22.1	-6.02	50	52.6	+6.59

χ^2

Mobility at the time of diagnosis of MCC. A comparison between the Tayside hotline, and the CRAG audit.

		Tayside hotline			CRAG audit		
		N	%	χ^2	N	%	χ^2
Overall	Unable to walk	10	22.7	-4.27	149	46.0	+0.58
	Walking with assistance	19	43.2	+0.60	114	35.2	-0.08
	Walking unaided	15	34.1	+3.85	61	18.8	-0.52
	Total	44			324¹		
Lung	Unable to walk	4	44.4	-0.08	35	52.2	+0.01
	Walking with assistance	2	22.2	-0.45	25	37.3	+0.06
	Walking unaided	3	33.3	+2.78	7	10.5	-0.37
	Total	9			67		
Non lung	Unable to walk	6	17.1	-4.89	114	44.4	+0.67
	Walking with assistance	17	48.6	+1.45	89	34.6	-0.20
	Walking unaided	12	34.3	+2.11	54	21.0	-0.29
	Total	35			257		

Conclusions

- Fast Track referral according to strict criteria can reduce time to diagnosis, and improve mobility at time of diagnosis
- Does not lead to reduced positive scan rate

Conclusions

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Does it allow time for treatment and improved clinical outcomes – i.e. pain free survival, reduced hospital stay?

FUTURE

National web based education toolkit accessible by all healthcare professionals

NHS Education Service have expressed interest in using toolkit to embed education in oncology modules for pre and post registration medical and nursing courses

Toolkit will contain printable patient information that professionals may give to patients during consultation

Useful links :

- Synergy articles www.sor.org
- Feb 2008 How to.... Implement a rapid referral hotline
- Mar 2008 How to.... benefit from a rapid referral hotline
- In Press- Article in The British Journal of Cancer

- NICE guidelines
- <http://www.nice.org.uk/guidance/index.jsp?action=folder&o=40703>

- [CRAG Audit](#)
- [Levack P, Collie D, Kidd J, Kunkler I, Mcmillan N, Rampling R, Slider L, Statham P, Summers \(2001\) A prospective audit of the diagnosis, management and outcome of malignant cord compression. www.crag.scot.nhs.uk/Committees/ceps/reports](#)