Brain tumours in children: detection

Childhood cancers feel like rare events but a full time GP is likely to see a child with a new cancer every 6 years or so and a quarter of these children will have a brain tumour. Early diagnosis improves outcomes. How do we spot them?

Suspected childhood brain tumour referral guidelines

NICE guidance on CNS tumours in children is fairly scanty (NICE 2015, NG12):

<table>
<thead>
<tr>
<th>Brain and CNS cancers in children</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Consider very urgent (within 48h) referral of children and young people with newly abnormal cerebellar or other central neurological function.</td>
</tr>
</tbody>
</table>

This BMJ article is a little more detailed and helps us to know when to consider brain tumours in our differential (BMJ 2013;347:f5844).

How do brain tumours in children present?

This article reminds us that the presentation can be quite varied depending on age of the child and tumour location. Studies suggest that at initial symptom onset children tended to have one symptom or sign, but by the time the diagnosis was made, they had six!

Red flag symptoms

Only one-third of children diagnosed with a brain tumour will have a red flag symptom recorded in the preceding 12m – only 2% of childhood cancers are diagnosed through 2ww! Unfortunately none of the red flag symptoms are highly specific. The most predictive red flag symptoms for brain tumours in children were:

• Abnormal movements.
• Visual symptoms.
• Vomiting.
• Headaches.
• Seizures.

The likelihood of these symptoms leading to a diagnosis of brain tumour is increased in children with frequent primary care presentations so the authors suggest that the presence of any red flag symptom and repeat (3 or more) consultations should be referred for investigation.

Brain tumour presentation according to age

Two or more of these features should prompt urgent referral (this is based on a systematic review which looked at the most common presenting features of brain tumours in children).

<table>
<thead>
<tr>
<th>Pre-school (&lt;5y)</th>
<th>Primary school (5–11y)</th>
<th>Secondary school (12–18y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent or recurrent vomiting</td>
<td>As per pre-school + Complaints of persistent or recurrent headache</td>
<td>As per primary school + Delayed or arrested puberty or slow growth</td>
</tr>
<tr>
<td>Problems with balance/co-ordination/walking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal eye movements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behaviour change, esp. lethargy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fits or seizures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abnormal head position, e.g. head tilt, wry neck, persistent stiff neck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increasing head circumference (if fontanelle still open)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

What should I do if I suspect a brain tumour?
Sick children

- Children with symptoms of raised intracranial pressure (persistent headache, vomiting, confusion, drowsiness, impaired consciousness) should be referred to paediatrics on the same day for urgent admission and imaging.

Well children

- Examine the nervous system – remember visual assessment in young children can be difficult and you may need to refer to community orthoptics/optometry – children should be seen within 2w.
- If findings are specific enough to raise concern, refer urgently to paediatric outpatients for consideration of imaging.
- If findings are non-specific a period of watchful waiting with careful safety-netting may be appropriate because symptoms and signs tend to evolve with time in children with brain tumours. Review within 2w.

Proton beam therapy

Interest in proton beam therapy has been raised by the widely publicised case of Ashya King, a little boy with a brain tumour whose parents removed him from the care of a UK hospital to take him to Prague to receive this special type of radiotherapy.

A small study of 56 patients with medulloblastoma has recently completed and demonstrated that proton beam therapy has similar success rates but lower toxicity than conventional radiotherapy (Lancet Oncol 2016;17(3):287).

A BMJ editorial reminds us that brain tumours are still the most common cause of death from cancer in children, and of those who survive, 60% are left with moderate to severe disability (BMJ 2014;349:g5654). As more children survive there is increased interest in optimising treatments but minimising side-effects and proton beam therapy is one such option.

- Proton beam therapy is a type of radiotherapy able to deliver radiation very specifically to the target with virtually no overspill.
- There is currently no facility to provide this in the UK but a unit is due to open in Newport in 2017 followed by units in London and Manchester in 2018.
- The NHS has referred more than 350 children to a unit in the USA for proton beam therapy when their specific case was judged by a panel to gain most benefit from this treatment. The panel’s decisions were based on current best available evidence.
- Most children referred required very focal radiotherapy.

This editorial explains that Ashya King was not eligible for this treatment because the type of tumour he experienced tends to metastasise to the meninges and adjuvant cranio-spinal radiotherapy with chemotherapy is the current best-evidenced treatment. This treatment offers an 80% long-term survival but at a cost of possible cognitive impact later in life.

Here is an example of a complex and emotive topic played out in the media without due attention to the available science. Sadly progress in paediatric oncology research can be painfully slow because of the rarity of each individual cancer and this must only add to parental distress.
### Brain tumours in children

- Consider brain tumours in your differential for children presenting with persistent or recurrent headache or vomiting.
- Look for evidence of visual disturbance, eye movement abnormalities or changes in gait/balance or behaviour, especially lethargy.
- Refer unwell children with symptoms of raised intracranial pressure immediately.
- In a well child with 2 or more features which could suggest a brain tumour refer for urgent outpatient assessment within 2w.
- Proton beam therapy is a highly specific form of radiotherapy which will be available in the UK from 2017 – eligible children are currently referred to the USA by an NHS panel.

### Do a significant event analysis on the last 2 cases of paediatric cancer diagnosed at your practice – reflect on the presentation, whether there was any diagnostic delay, what safety-netting strategies were used. Discuss this with the primary care team.

### For patients and professionals:

This charity website groups together useful information, e.g. symptom cards to give parents if safety-netting headaches and copies of the RCPCH quick reference guideline on diagnosing brain tumours:

www.headsmart.org.uk

---

We make every effort to ensure the information in these pages is accurate and correct at the date of publication, but it is of necessity of a brief and general nature, and this should not replace your own good clinical judgement, or be regarded as a substitute for taking professional advice in appropriate circumstances. In particular check drug doses, side effects and interactions with the British National Formulary. Save insofar as any such liability cannot be excluded at law, we do not accept any liability for loss of any type caused by reliance on the information in these pages.

GP Update Limited
November 2016
OUR UPCOMING COURSES

Our comprehensive one-day update courses for GPs, GP STs, and General Practice Nurses.

We do all the legwork to bring you up to speed on the latest issues and guidance.

All our courses are:
- Relevant: Developed and presented by practising GPs and immediately relevant to clinical practice.
- Challenging: Stimulating and thought-provoking.
- Unbiased: Completely free from any pharmaceutical company sponsorship.
- Fun: Humorous and entertaining – without compromising the content!

Are they for me?

Our courses are designed for:
- GPs, trainers and appraisers preparing for appraisal and revalidation or wanting to keep up to date across the whole field of general practice.
- GP ST1, 2 & 3, looking for the perfect launch pad into general practice and help with AKT and CSA revision.
- GPs who want to be brought up to speed following maternity leave or a career break.
- General Practice Nurses, especially those seeing patients with chronic diseases.

What’s included?

- 6 CPD credits in a lecture-based format, with plenty of time for interaction, humour and video clips, to keep you focussed and awake.
- A printed copy of the relevant handbook including the results of the most important research in primary care over the last 5 years and covering the subjects more extensively than possible in the course.
- 12 months subscription to www.gpcpd.com. With three times the content of the handbook, it allows you to capture CPD credits as you read on the site and use it in consultations! It also comes with Focused Learning Activities - Online learning activities to provide evidence for your appraisal and earn hundreds further hours of CPD credits.
- Buffet lunch and refreshments throughout the day!

What’s not included? Our courses contain NO theorists, NO gurus, NO sponsors, NO reps on the day! Just real-life GPs who will be back at the coal face as soon as the course has finished.

www.gp-update.co.uk
The GP Update Course – our flagship course!
With the amount of evidence and literature inundating us, it can be hard to know which bits should change our practice, and how. Our GP presenters summarise and discuss the results of the most important new evidence and guidance, concentrating on what it means to you and your patients in the consulting room tomorrow.

2016

Oxford  Fri 30 Sep
Southampton  Sat 1 Oct
Cardiff  Wed 5 Oct
Exeter  Thu 6 Oct
London  Fri 7 Oct
London  Sat 8 Oct
Leeds  Wed 12 Oct
Liverpool  Thu 13 Oct
Manchester  Fri 14 Oct
Birmingham  Sat 15 Oct
Cambridge  Tue 18 Oct
London  Wed 19 Oct
Nottingham  Thu 20 Oct
Inverness  Wed 2 Nov
Edinburgh  Thu 3 Nov
Glasgow  Fri 4 Nov

2017

London  Fri 10 Mar
London  Sat 11 Mar
Oxford  Thu 16 Mar
Leeds  Fri 17 Mar
Birmingham  Sat 18 Mar
Bristol  Wed 10 May
Exeter  Thu 11 May
London  Fri 12 May
London  Sat 13 May
Newcastle  Wed 17 May
Sheffield  Thu 18 May
Manchester  Fri 19 May
Birmingham  Sat 20 May
Norwich  Tues 23 May

The Women’s Health Update Course
This one-day update is a comprehensive guide to understanding and managing common gynaecological problems in general practice. You will meet “the Fallopians”, a fictitious family with more gynaecological complaints than you can shake a speculum at. Using a case-based approach will give you the skills to manage your female patients in a real surgery.

We aim to make the day fun, interactive as well as educational. You will leave the course feeling more confident, knowledgeable and with a much stronger pelvic floor!!! The day is designed for all GPs and GP STs – not just those with a special interest!

Exeter  Thu 3 Nov
London  Fri 4 Nov
Leeds  Thu 10 Nov
Manchester  Fri 11 Nov

The Cancer Update Course
Within the next 15 years the need for cancer care will double and you will look after as many cancer survivors as diabetics.

Shared care follow up will become the norm, secondary care will pass responsibility to us.

A key 2015 Lancet Oncology commission paper warned that: “GPs are inadequately trained and resourced to manage the growing demand for cancer care in high income countries”.

Education for GPs was one of their five key recommendations – we can help!

The Cancer Update Course covers many more topics in much more depth than our GP Update Course. It offers you time to reflect and put your cancer learning into practice.

Cancer care is changing – get ahead with the Red Whale Cancer Update Course.

Manchester  Thu 10 Nov
Birmingham  Fri 11 Nov
Cambridge  Thu 17 Nov
London  Fri 18 Nov
Lead. Manage. Thrive! – The NEW management skills course for GPs.

Sometimes it feels like the thriving GP is an endangered species – demands on limited time and resources have never been higher. Our practices run in ever more complex ways and our teams extend beyond the practice walls. Often we get that instinctive feeling that there must be a better way to do things, but creating the space to make it happen can be difficult.

As usual Red Whale has done all the legwork to bring you a concise, practical and actionable one day course and handbook. Not only have we trolled through lots of relevant management, leadership and development literature, but we have also distilled its content through the lens of real GPs, enabling you to apply it to the reality of your practice.

**Leeds** Fri 18 Nov

**Birmingham** Sat 19 Nov

**Bristol** Fri 25 Nov

**Cambridge** Sat 26 Nov

The Telephone Consultation Course

With the increased importance of telephone consultations this course aims to deliver practical skills which can be put to use immediately. The telephone is being used more and more by nurses as well as doctors in primary care, for triage, consultation and follow-up; in the daytime as well as out of hours. Our goal is to help you overcome difficulties and leave you with concrete ideas to enhance your own telephone contacts with patients.

**London** Thu 6 Oct

**Manchester** Thu 13 Oct

The Effective Consultation Course

The course focuses on behaviours which enhance effective use of time in the consultation. Efficient consultations reduce clinical risk and lower the risk of complaints and lawsuits. The course uses the rich evidence base on which consultation behaviours enhance effectiveness and how to go about learning them. We focus on actions, and you will leave with many practical tips to use in your consulting room the following day.

**Leeds** Wed 5 Oct

**London** Fri 25 Nov

**Prices**

**GP Update Course:**

GP £195 | GP Registrar £150 | Nurse £150

**All other courses:**

£225 or £210 for members of [www.gpcpd.com](http://www.gpcpd.com)

(GPCPD members, please log in and then click on the relevant button within the ‘Member information’ box on the right of the home screen to get your discount code)

Did you know that all of our courses can also be run ‘in-house’ for CCGs, Clinical Groups and STs groups?

And don’t forget the usual perks of any Red Whale course

- A printed copy of the relevant Handbook covering the results of the most important research in primary care over the last 5 years.
- 12 months subscription to the relevant online CPD tracking tools, home of the Update Handbooks online and CPD tracker system.
- 100% unbiased content and 0% Pharma company sponsorship.

If you would like to discuss running an In-House Course with Red Whale please contact us:

Tel: 0118 960 7077 or email: info@gp-update.co.uk
I would like to come on the following course(s) (please write legibly!):

- The GP Update Course (location).............................................................   (date).........................
- The Women’s Health Update Course (location).............................................................   (date).........................
- The Cancer Update Course (location).............................................................   (date).........................
- Lead. Manage. Thrive! (location).............................................................   (date).........................
- The Telephone Consultation Course (location).............................................................   (date).........................
- The Effective Consultation Course (location).............................................................   (date).........................
- The GPN (Nurse) Update Course (location).............................................................   (date).........................

I can’t attend a course but would like to order your Handbook or DVD

- GP Update Handbook and 12 months access to GPCPD £150
- GP Update Handbook, DVD and 12 months access to GPCPD £225
- Women’s Health Update Handbook £70
- Cancer Update Handbook £70

Name...............................................................................   Address...................................................................................................

Email...................................................................................................................................................................................................

(Please write your email address clearly as we’ll use it to send your confirmation letter and receipt.)

Price as stated in the flyer for each course. If applicable, please provide your discount code here...

Please send this form with your cheque payable to GP Update Limited to:

GP Update, The Science and Technology Centre, Earley Gate, Whiteknights Road, Reading RG6 6BZ

GP Update Limited, registered in England and Wales No. 7135974.
Registered Office: Prospect House, 58 Queens Road, Reading RG1 4RP
Full terms and conditions are available at www.gp-update.co.uk

BMJ/170916