Unusual association of diseases/symptoms

'Tell me about your pain': abdominal pain and a history of bullying

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Summary

A 7-year-old girl was brought to our outpatient clinic to investigate recurrent abdominal pain. She was unwilling to attend the school. Her mother reported bullying at school and nosebleeds. The girl rated her pain 9 on a visual analogue score card ranging from 1 to 10. Physical examination disclosed painful bruising and haematomas. Emergency laboratory blood tests indicated by the history, physical examination and the pain intensity showed reduced numbers of white blood cells and platelets. A bone marrow smear on admission disclosed 100% blasts and suggested an initial diagnosis of leukaemia but also disclosed the pseudo-rosettes typically seen in neuro-ectodermic tumours. The diagnosis of stage IV primary neuroblastoma was confirmed by trephine biopsies and high urinary catecholamines. The girl died 10 months later. This unusual case underlines the need for outpatient paediatricians to involve children in their initial diagnostic work-up by asking them about their pain thus expediting the diagnosis.

BACKGROUND

Paediatricians only rarely question children about or openly discuss their pain and suffering.¹ Worried parents can also distract the paediatrician's attention from what their children have to say so that essential information about the underlying health problem is lost.² This instructive case report shows that talking to children about their pain is a reliable self-reported tool that often gives the physician invaluable information and may even lead to unexpected diagnosis.

CASE PRESENTATION

A 7-year-old girl came to our outpatient unit in September 2009 with a history of recurrent abdominal pain over the past months. Apart from an outpatient visit for otitis media 2 months earlier, her personal history was unremarkable. At 8 months she had a self-limited perianal abscess. Her mother reported two asthma episodes a year and a positive radioallergosorbent test for dust. The clinical history mentioned normal sleep, diuresis and stools, no weight loss, bone pain or fever but recurrent nosebleeds over the past days. Her mother expressed concern about bullying at school and referred to bruising on the back after a classmate had punched the girl about 2 days earlier. At the end of history-taking the girl rated her abdominal pain 9 on a visual analogue scale (VAS) ranging from 1 to 10^{3 4} (figure 1) and said that she did not feel like going to school. The physical examination showed a healthy, pale-faced girl. It also disclosed a painful bruised area measuring 4×5 cm in diameter on the back, and two smaller bruises in the spinal region. Another haematoma was visible on the left knee but the child denied trauma.

The abdomen appeared swollen, painless upon deep palpation and without palpable masses. The liver and spleen edges were difficult to feel.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis therefore involved recurrent, progressively worsening abdominal pain, abdominal pain reported during the various stages of history-taking and related to bullying, or leukaemia, suggested by the high VAS pain score, nosebleeds and bruising in areas unrelated to the reported bullying.

INVESTIGATIONS

Laboratory blood tests to investigate the self-reported abdominal pain score, recurrent nose bleeds, paleness and skin lesions, bruising, attributed to haemorrhage and exclude leukaemia showed a low white cell count, 3,200/μl and polymorphonuclear count 1180 (37%), low haemoglobin, 7.8 g/dl, low platelet count 49 k/μl, an erythrocyte sedimentation rate of 31 mm, lactate dehydrogenase (LDH) 14,150 IU/l (normal value 230–470), uric acid 7.8 mg/dl (normal value 2.4–5.7), alanine lactate transaminase 154, aspartate transaminase 468 (normal value 5–40 IU/l) and normal prothrombin time and partial thromboplastin time. On the same day, to investigate cytopenia the girl was admitted to the Haematology-Oncology Unit.

On admission, an abdominal ultrasound scan to investigate the high LDH and cytopenia together with the physical findings disclosed an enlarged spleen and liver, with a left liver nodule (3 cm in diameter) and a poorly defined left paravertebral mass (8×6 cm). A bone marrow smear

Figure 1 Visual Analogue Scale (VAS) used at Bambino Gesù Children's Hospital Rome, Italy.

Figure 2 (A) Bone marrow smear: small cells with scanty cytoplasm, round nucleus and inconspicuous nucleoli similar to lymphoblasts in lymphoid leukaemia (May Grünwald Giemsa stained specimen, original magnification 63). (B) Bone marrow biopsy: focal involvement by nests of neoplastic cells in a fibrillar background (H&E stained specimen, original magnification 40). Immunohistochemical staining for (C) neuron specific enolase and (D) synaptophysin highlights the neoplastic cells (original magnification 40).

suggested acute leukaemia (100% blasts) but also disclosed the pseudo-rosettes, typically found in neuro-ectodermic tumours. Histopathological examination of bone marrow trephine biopsy samples confirmed a diagnosis of stage IV neuroblastoma (figure 2) and laboratory tests showed the pathognomic high urinary catecholamines: vanillylmandelic acid 36.4 µg/mg, creatinine and homovanillic acid 150 µg/mg creatinine (normal value 0–14). A whole-body CT scan disclosed a partially calcified left retroperitoneal mass (8.8×7×5.3 cm) and focal metastases involving the parietal bone, liver and spleen. Although the skin lesions might have been skin metastases rather than haemorrhage, the patient did not undergo skin biopsy because the diagnostic work-up (physical findings, imaging, bone marrow aspiration and biopsy) clearly indicated stage IV neuroblastoma.

TREATMENT

A central venous line was immediately inserted for chemotherapy. Chemotherapy to reduce the mass was complicated by gastrointestinal bleeding requiring transfusions and, on the last day, by severe tumour lysis syndrome (LDH 86.350 IU/l) with acute renal failure requiring dialysis and intensive care unit admission. Within 1 month the girl was weaned from dialysis and discharged. Bone marrow cytogenetic analysis showed *MYCN* oncogene amplification. After induction therapy, surgery successfully ablated the primary abdominal mass. Because peripheral blood stem cell harvest had been unsuccessful and the patient had an human leukocyte antigen compatible sibling, a tandem allogeneic transplant was planned in an attempt to consolidate her partial remission.

OUTCOME AND FOLLOW-UP

The girl was unable to benefit from the transplant because her clinical conditions worsened and she died in July 2010.

DISCUSSION

We found no reported cases of a child with no palpable abdominal mass in whom lesions related to bullying, nosebleeds and ecchymoses suggesting leukaemia misled the diagnosis of neuroblastoma. Notwithstanding the diagnostic shortcomings in this case, paediatricians have no help from published evidence-based reviews⁵ or guidelines on how to seek pain during the diagnostic work-up in children attending outpatient departments.⁶ Although from an oncologist's point of view we could have diagnosed a primary neuroblastoma from the cytopenia and physical findings without considering abdominal pain, children attending an outpatient clinic often had acute problems that sometimes mislead the diagnosis.

Learning points

- ▶ Our case report serves as reminder that because surprisingly few children referred from an emergency department have abnormal vital signs,⁷ the diagnostic work-up must inevitably seek information by questioning the children themselves. Although the child we describe had visited the outpatient department for acute otitis media no detailed clinical history was taken nor was her pain intensity scored on a VAS. This poor assessment of children's pain in the first clinical encounter again underlines that outpatient paediatricians only rarely question children about or openly discuss their pain and suffering.
- ▶ Essential information about the underlying health problem is often lost also because worried parents distract the paediatrician's attention from what children themselves have to say.
- ▶ Talking to children about their pain is a reliable self-reported tool that often gives the busy physician in an outpatient department invaluable diagnostic information. For this purpose, the faces pain scale (figure 1), already used for children in chronic pain to identify easily the facial images that best describe their pain, deserves a place also in the diagnostic work up.
- ▶ In children attending an outpatient clinic for acute abdominal or other pain, timely assessment of pain intensity using the easily and quickly administered faces pain scale can expedite the differential diagnosis or even unexpectedly disclose tumour or life-threatening disease.

Competing interests None.

Patient consent Obtained.

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