

**Case 4 (February 10 2011):** [N Engl J Med. 364\(6\):552-562](#)

**Demographic:** Male, 4 yrs, North America

**Clinical features extracted from the case and entered into the query box:**

low back pain  
bone pain  
refusal to walk  
low grade pyrexia  
hypercalcemia

**STOP !**

**Before you read further you might want to construct your own:**

- Complete differential diagnosis
- Final diagnosis

**In the following section you will find:**

- The differential diagnosis constructed by the MGH panel
- The final diagnosis of the case
- Which of the MGH panel differential diagnoses did Isabel contain
- Did Isabel suggest the final diagnosis

**Differential Diagnoses considered by the MGH panel:**

Familial hypocalciuric hypercalcemia  
Primary hyperparathyroidism

**Final Diagnosis of the case according to NEJM:**

B Lymphoblastic leukemia

**Differential Diagnoses of the case as given by Isabel:**

Familial hypocalciuric hypercalcemia under Pathological hypercalcemia in Endocrine  
Primary hyperparathyroidism under Hyperparathyroidism in Endocrine

**Was the final diagnosis given by Isabel:**

Yes, Acute lymphoblastic leukemia under Leukemia in Neoplastic

### Isabel Differential:

**enter clinical features** | synonyms

age\*

gender  female  male

**Refine search:**

travel history:

**show me:**

diagnoses

causative drugs

bioterrorist agents

Enter clinical features, no negatives, no numbers: ⓘ

low back pain
bone pain
refusal to walk
low grade pyrexia
hypercalcemia

+ add a clinical feature

**get checklist** ➔

clear search

Isabel is not meant to replace your clinical judgment.

**diagnoses**

**Most Relevant**

sort by: most relevant | action: -select-

show: 10 20 30 all ⓘ ⓘ

Leukemia ⤴ ⤵ ⓘ NEOPL

└─ Acute Lymphoblastic Leukemia ⤴ ⤵ ⓘ

**Why did this diagnosis come up ?** ❌

We matched the terms: bone pain | bone pains | lowgrade fever | hypercalcemia

Degree of match between query entered and Isabel database (Not clinical probability): 100%

<input checked="" type="checkbox"/> Juvenile Rheumatoid Arthritis ⤴ ⤵ ⓘ RHEUM
<input type="checkbox"/> Pathological Hypercalcemia ⤴ ⤵ ⓘ ENDO
└─ Hypercalcemia of Malignancy ⤴ ⤵ ⓘ
└─ Benign Familial Hypocalciuric Hypercalcemia ⤴ ⤵ ⓘ
Neuroblastoma ⤴ ⤵ ⓘ NEOPL
Renal Osteodystrophy ⤴ ⤵ ⓘ ORTHO
Spondylolysis and Spondylolisthesis ⤴ ⤵ ⓘ ORTHO
Hypophosphatasia ⤴ ⤵ ⓘ ORTHO
Vit C Deficiency ⤴ ⤵ ⓘ NUTRI
X-linked Hypophosphatemic Rickets ⤴ ⤵ ⓘ ORTHO
Urinary Tract Infection ⤴ ⤵ ⓘ NEPHRO
<input checked="" type="checkbox"/> Liver Neoplasms ⤴ ⤵ ⓘ NEOPL

feedback:  submit