Immune Thrombocytopenic Purpura.

1. Immune thrombocytopenic purpura (ITP) in children usually presents with the sudden onset of bruising, petechiae, and bleeding in an otherwise healthy child.

2. ITP typically follows two weeks after a viral prodrome.

3. ITP is usually caused by antibodies to platelets that lead to opsonization and destruction of platelets in the spleen.

4. Platelet counts are usually very low (<10,000).

5. Typical ITP occurs in a well child.

6. Atypical symptoms include fever and bone pain, and atypical signs include leukocytosis, leukopenia, anemia, hepatosplenomegaly or lymphadenopathy. The major confounding diagnosis is leukemia. Any patient being worked up for ITP should trigger thoughts of “could this be leukemia?”

7. The peripheral smear usually shows large (young) platelets.

8. The proper treatment for a non-bleeding patient with ITP is controversial, and ranges from non-treatment to steroids (4 mg/kg/day divided bid X 1 week, and then tapered). Some physicians will treat these patients with intravenous immunoglobulin (IVIG) or anti-D therapy (WinRho).

9. Patients with significant bleeding or wet purpura (mucous membrane bleeding) usually receive IV IgG (0.8g/kg X 1) or WinRho (75 mcg/kg). This treatment is thought to raise the platelet count slightly faster than prednisone. A rise in platelets in not always within a day, and yet second doses are not indicated for a non-bleeding patient.

10. ITP in young children is usually self-limited; 50% have complete resolution in 2 months, 75% in 4 months, and 90% in six months. ITP in teenagers is more likely to become chronic, with >50% of patients have symptoms greater than 6 months. Menorrhagia can be a major problem in young women with ITP.

11. ITP can be a presenting sign of autoimmunity, and is frequently associated with systemic lupus erythematosis. This is particularly true in teenage girls, and these patients should be screened for lupus by testing for antinuclear antibodies (ANA).

12. Chronic ITP is defined by lack of resolution after 6 months.

13. Treatments for chronic ITP include steroids (prednisone, dexamethasone), dapsone, vincristine, 6 mercaptopurine, cytoxan and rituximab.
14. Splenectomy is contemplated in patients with ITP that lasts > 1 year. Many centers will contemplate splenectomy after 6 months of symptoms. Reasons splenectomy may be contemplated earlier are participation in contact sports, life-threatening hemorrhage refractory to other treatments and poor tolerance of other treatments. Reasons splenectomy is postponed beyond 1 year is age < 5 and parental/child concerns about splenectomy. Greater than half the patients with chronic ITP will eventually go into remission over time without splenectomy. Approximately 75% of patients who undergo splenectomy respond.

15. Prior to splenectomy, and spleen scan should be performed to evaluate for secondary splenic tissue.

16. Prior to splenectomy, patients should be immunized against pneumococcus, meningococcus, and Haemophilus influenza. Patients < 5 years should be given the 7 valent conjugated vaccine (Prevnar) which is more immunogenic in young children. Patients who are older than 5 should receive the 24 valent polysacharride vaccine (Pneumovax). Patients who receive meningococcal vaccine at age < 5 should be boosted 1 year post-splenectomy. Patients who have received all of their HIB vaccines do not need additional vaccination.

17. Refractory ITP is thrombocytopenia that does not respond to traditional agents IVIG and prednisone or splenectomy. Refractory ITP will sometime respond to more global immunosuppression or T-cell specific agents (cyclophosphamide, cyclosporine). 

Cases:

1. A 14 year old girl presents with menorrhagia and purpura. There is no history of fever or bone pain. Physical exam is normal. CBC shows HGB 13, WBC 6.5, and PLT 6.

This is classic ITP. However, because of this patient’s age and sex, she should be worked up for lupus.

2. A 5 year old boy presents with fever, epistaxis, and malaise. He is seen in the ER where exam shows shoddy lymphadenopathy in the neck and groin. CBC shows WBC 3.7, HGB 11, and PLT 77.

This patient has mild pancytopenia, and should undergo a bone marrow aspirate. The working diagnosis is leukemia until proven otherwise. Certain infections (CMV, EBV, HIV, and others), medications (antibiotics, antiseizure, antihistamine, antineoplastic meds), and autoimmune disorders can also cause pancytopenia. Giving steroids to this child would make diagnosing and treating his leukemia more difficult. Prednisone would partially treat leukemia, and the symptoms might improve for a time only to come roaring back. There is concern that pretreatment with steroid breeds resistant leukemia, and would require more therapy to cure.
3. A seven year old girl comes to your office with sudden onset of easy bruising. This child has been followed by you for genitourinary reflux, and has a horse-shoe kidney. She also is small for age. A CBC is performed that shows a WBC of 7, HGB 12, and platelets of 75.

This patient could have Fanconi’s anemia. Fanconi’s anemia is classically associated with short stature and thumb abnormalities. However, 30% of patients have a completely normal phenotype. In addition, the VACTERL associations are seen in Fanconi anemia, and patients with these (Vertebral, Cardiac, Tracheo-esophageal fistula, Renal, and Limb anomalies) and cytopenias should be worked up for Fanconi Anemia. These patients present at an average age of 7, and usually begin with thrombocytopenia but progress to pancytopenia. This patient actually had a hemivertebra on CXR, and was labeled as ITP for two years before developing pancytopenia, when the correct diagnosis was made.
References:

1. Bolton-Maggs PH, Dickerhoff R, Vora AJ. The nontreatment of childhood ITP (or "the art of medicine consists of amusing the patient until nature cures the disease"). Semin Thromb Hemost. 2001;27:269-275