Discussion (continued)
Inflammatory bowel disease is strongly associated with PSC, nearly four-fifths of PSC will have inflammatory bowel disease (IBD). However only 2.5-7.5% of IBD have PSC. One series of case reports showed that PSC can occur in 5.7% of ulcerative colitis patients (UC). Sarcoidosis is a granulomatous systemic disease of probable autoimmune origin. Although familiar associations are reported for crohnes disease and sarcoid case reports associating IBD and sarcoid are rare. Barr et al reported cases of sarcoidosis among 680 UC patients.
Primary sclerosing cholangitis and sarcoid should occur in the same individual by chance in 2-32 per one billion population. Thompson et al reported one case of sarcoidosis among 37 PSC patients, while a case report, one recent new report has reported 9% sarcoidosis. Thus there must be a histopathologic association between these entities.

Multiple cellular and humoral immunologic abnormalities are noted in PSC highlighting the role of immune-related process in its pathogenesis, they include presence of non specific auto antibodies, elevated serum levels of immunoglobulins, circulating immune complexes and complement activation. PSC is associated with other immunologically-mediated diseases like angioblastic lymphadenopathy, immune deficiency syndromes, sicca syndrome, histiocytosis X, mediastinal and retroperitoneal fibrosis. HLA-B8 and HLA-DR-3 antigens are common in PSC and are associated with increased incidence of autoimmune disease.
Sarcoidosis likely results from an exaggerated immune response to a limited class of antigens (self or preserved) although no clear HLA locus has been associated. HLAB8 is associated with increased incidence of rheumatologic syndromes, systemic lupus erythematosus, acne rosacea, Behcet disease, and sarcoidosis. HLA-DR-3 and -DR-4 are also associated with increased incidence of erythema nodosum and arthritis in sarcoidosis. Sarcoidosis may well mimic chronic biliary tract disease. One case report by Magder et al. (1999) reported 2 cases of sarcoidosis mimicking a primary biliary disease.

Primary sclerosing cholangitis and IBD are both associated with elevated serum immunoglobulin levels. The association between primary sclerosing cholangitis and sarcoidosis is reported in at least one of the case reports. Also chronic ulcerative colitis may well mimic cholangiographic changes of the intrahepatic ducts seen in PSC.
In our patient diagnosis of PSC with UC later developing sarcoidosis is likely because he had UC, proven by biopsy and PSC well before he was diagnosed with sarcoid. His IgM was elevated keeping with the finding that in chronic cholestasis secondary to sarcoidosis IgM was normal, and showed increase in more than 50% PSC. Our patient had liver biopsy in 2001 which suggested probable PSC involving only small intrahepatic ducts, while repeat liver biopsy in 2003 was suggestive of sarcoidosis. This case report also highlights the importance of early diagnosis of PSC in sarcoidosis.

Primary sclerosing cholangitis and sarcoidosis may be important in evaluating patients with non specific symptoms of malaise and weight loss. Also the clinician should be aware of sarcoidosis complicating and mimicking a intrathepatic biliary cholestatic appearance. A trial of steroids might be beneficial in sarcoidosis patients although it has not yet been shown to reverse the cholestatic changes. Our patient was treated with oral steroids for neuro sarcoidosis and high dose ursodiol for his PSC; he continues to be seen in the clinic and is doing well.

Conclusion
The association between primary sclerosing cholangitis and sarcoidosis may be important in evaluating patients with non specific symptoms of malaise and weight loss. Also the clinician should be aware of sarcoidosis complicating and mimicking a intrathepatic biliary cholestatic appearance. A trial of steroids might be beneficial in sarcoidosis patients although it has not yet been shown to reverse the cholestatic changes. Our patient was treated with oral steroids for neuro sarcoidosis and high dose ursodiol for his PSC; he continues to be seen in the clinic and is doing well.