Acute pancreatitis preceding thrombotic thrombocytopenic Purpura

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Sir,

Swisher and colleagues propose that on occasion acute pancreatitis can precipitate thrombotic thrombocytopenic purpura (TTP).[1] We also recently observed a patient with acute pancreatitis subsequently complicated by TTP.

A 23-year-old Caucasian male, otherwise fit and healthy (except for congenital nystagmus), was admitted as an emergency to our general surgical unit with a one-day history of acute left-sided abdominal pain, vomiting and fever. Direct questioning elicited no history of diarrhoeal illness nor of ingestion of uncooked meats. He was on no regular medication and denied any ingestion of herbal remedies. Amylase and lipase levels of 2279 U/L and 3350 U/L respectively, and radiological (ultrasound and CT) appearances were consistent with a diagnosis of acute pancreatitis and he was treated with intravenous fluids and analgesia.

His CBC on day 1 of his admission was: Hb 153 g/L; WBC 15.2 x 10^9/L; platelet count 348 x 10^9 /L (see Table 1). Blood film examination confirmed a neutrophil leucocytosis with no evidence of red cell fragmentation.

The etiology of the pancreatitis appeared to be cholelithiasis, based upon absence of alcohol consumption, no medication use, and ultrasonographic evidence of biliary "sludge". Blood and urine cultures were negative.

Within 36 hours there was clear resolution of the patient's original symptoms and a fall in the amylase level from 2279 U/L at presentation, day 1 to 1434 U/L on day 2. He had evidence of an increasing creatinine, with a rise from a baseline level of 70 µmol/L on admission to a maximal level of 157µmol/L by day 3; unconjugated bilirubin levels also rose from a level of 37µmol/L on day 2 of the admission to a maximum of 112µmol/L by day 3. Over this period there was also a dramatic fall in his platelet count from 348 x 10^9 /L on day 1 of admission to 15 x 10^9 /L on day 4 of admission, accompanied by a dramatic increasing degree of red cell fragmentation on blood film examination with a concurrent reticulocytosis consistent with a worsening microangiopathic hemolytic anemia. No red cell fragments were seen on the admission blood film. There was evidence of free hemoglobin present, with low haptoglobins and the presence of methemalbuminemia. Serum lactate dehydrogenase levels rose from a baseline

Table1. Laboratory parameters indicative of a resolving picture of acute pancreatitis yet developing a first episode of TTP.

Day	*Hb (g/L)*	*Plt (x 10^9/L)*	*Creat (µmol/L)*	*Bili unconj (µmol/L)*	*LDH (U/L)*	*amylase (U/L)*	*lipase (U/L)*	*comments*
1	153	348	70	-	-	2279	3350	no schistocytes
2	142	202	128	37	753	1434	-	schistocytes*
2	138	113	154	-	-	-	-	no film
3	137	31	145	112	1995	-	-	schistocytes**
3	127	22	152	-	-	-	-	schistocytes**
4	104	15	157	69	-	494	-	schistocytes****
								Plasma exchange commences
5	97	10	154	32	1371	75	43	
6	87	25	130	-	319	82	-	
7	76	61	120	-	337	64	-	
9	103	160	114	-	321	75	-	
13	113	245	93	13	223	-	-	
15	104	320	84	-	217	-	-	
25	115	225	74	-	135	-	-	
32	122	290	71	-	165	-	-	
39	133	316	68	-	173	-	-	

of 753 U/L on day 2 of the admission to 1995 U/L on day 3. Coagulation parameters were normal. Besides mild confusion (and persisting chronic nystagmus), no neurological abnormalities were evident. He continued to have a fluctuating borderline fever. There was no clinical evidence of hemorrhage.

The patient commenced urgent plasmapheresis on day 4 with cryosupernatant plasma, and remained as an in-patient for a further 11 days, receiving daily plasma exchanges. During this time he was additionally treated with folic acid 5mg daily, enteric coated aspirin 81mg daily and a short course of high-dose prednisone (1mg/kg daily for 7 days).

Following discharge he underwent a further 7 plasma exchanges and has remained in remission, with his last review 9 months after initial presentation. There has been full normalization of the patient's renal function and no further episodes of hemolysis. Four months following presentation, the patient underwent laparoscopic cholecystectomy for chronic cholecystitis with no post-operative complications.

As in several of the cases in the series reported by Swisher and colleagues, our case exemplifies the short interval between the diagnosis of acute pancreatitis and the subsequent manifestations of TTP. Although arguably TTP may have been present but not clinically apparent, our patient at presentation had a normal CBC and blood film. Having already experienced one day of symptoms prior to presenting at our emergency room, the dramatic fall in his amylase and lipase levels in the face of mounting evidence of a developing microangiopathic hemolytic process and acute oliguric renal failure strengthens our view that the process of acute pancreatitis was the precipitant--not the effect--of the TTP process/microangiopathic process in this patient.

Unfortunately laboratory assays of ADAMTS-13 and anti-ADAMTS13 autoantibodies were not performed. We agree with Professor Mannucci that future similarly presenting cases should have plasma taken for retrospective analysis of ADAMTS13 and other von Willebrand factor proteases to better understand the complex pathogenesis of this life-threatening condition.[2]

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Ethics: this report satisfied the ethical requirements of the Research Ethics Board of Hamilton Health Sciences/Faculty of Health Sciences, McMaster University.

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