DIC and TTP are two causes of thrombocytopenia that require timely diagnosis and different treatments. Both conditions can be difficult to recognize as clinical presentations vary and current diagnostic criteria lack specificity. DIC is a complex thrombo-hemorrhagic condition that is always secondary to an underlying disorder, the most common causes being sepsis or trauma. It is primarily a clinical diagnosis that must be confirmed by laboratory data (see figure 2). There is, however, no single laboratory test that can establish or exclude the diagnosis. TTP is a rare condition characterized by systemic microvascular thrombosis, with an incidence of 4 to 11 cases per million people. Like DIC, TTP has no specific diagnostic test and it shares many of the clinical and laboratory features of DIC that can make the two diagnoses difficult to differentiate. Prompt recognition of TTP is warranted as it responds well to plasmapheresis, and without treatment it is associated with a high mortality rate. Although clinical presentation and laboratory data often lead to the correct diagnosis, equivocal results can often preclude finding a clear etiology.

**Hospital Course**

This is the case of a 77 year old female with PMH of spinal degeneration s/p multiple surgical procedures, hypertension, and hypothyroidism, who presented to the surgical ICU s/p T9-ileum posterior fusion transverse osteotomy, L1-L2 transfemoral lumbar interbody fusion, and T11-T12 posterior laminectomy. Her operative course was prolonged due to an incidental dural tear. She required a phenylephrine infusion for the majority of the 11-hour and fluid resuscitation of 3 units of PRBCs, 7700 ml of crystalloid, and 789 ml of cell saver. Blood loss was estimated at 1500 ml and urine output was 1150 ml Postoperatively she went to the ICU hemodynamically stable and intubated. By day 2, her renal function had worsened and she had developed thrombocytopenia (figure 1). A FENa done at the time was consistent with intrinsic renal damage. By day 3, the patient was also noted to have oozing wounds. An ultrasound of the right upper quadrant revealed an elevated FDP and D-dimer with a low ATIII but an elevated fibrinogen and marginally elevated PT and PTT. TTP was still being considered in the setting of renal failure which was likely acute tubular necrosis. On HD6 the patient developed urticarial encephalopathy and she required dialysis. After the patient’s platelets dropped to 21, plasma exchange was scheduled for HD7, but before initiating this treatment her platelets began to improve. The fact that her thrombocytopenia improved without intervention ruled out TTP as the etiology. She was transferred to the floor on HD8 with a diagnosis of DIC and AKI, likely due to an intra-operative event.

**Background**

TTP is a rare condition characterized by systemic microvascular thrombosis, with an incidence of 4 to 11 cases per million people. Like DIC, TTP has no specific diagnostic test and it shares many of the clinical and laboratory features of DIC that can make the two diagnoses difficult to differentiate. Prompt recognition of TTP is warranted as it responds well to plasmapheresis, and without treatment it is associated with a high mortality rate. Although clinical presentation and laboratory data often lead to the correct diagnosis, equivocal results can often preclude finding a clear etiology.

**Diagnostic Criteria**

<table>
<thead>
<tr>
<th>Diagnostic Criteria</th>
<th>DIC</th>
<th>TTP</th>
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</thead>
<tbody>
<tr>
<td>Unexplained microangiopathic, hemolytic anemia</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Thrombocytopenia, prolonged clotting times</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Presence of fibrin degradation products</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Low levels of coagulation inhibitors</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

**Pathophysiology**

- **DIC**: Severe deficiency of von Willebrand factor causes platelet aggregation and fibrinogen deficiency.
- **TTP**: Systemic formation of platelet-rich thrombi.

**Laboratory Values**

- **DIC**: Plasma exchange and glucocorticoids.
- **TTP**: Plasma exchange and glucocorticoids.

**Treatment**

- **DIC**: Plasma exchange and glucocorticoids.
- **TTP**: Plasma exchange and glucocorticoids.

**References**