

Extensive Abdominal Thromboembolic Disease: An Unexpected Complication of Testosterone Gel

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Extensive Abdominal Thromboembolic Disease: An Unexpected Complication of Testosterone Gel

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Background

- Testosterone replacement therapy is used to treat male hypogonadism to improve muscle strength, bone health and sexual function.
- These benefits must be weighed against the potential adverse effects of testosterone use.

Clinical Case

A 52 year old male with a history of hypertension and tobacco abuse presented with severe abdominal pain, back pain, constipation and fever for the past four days. CT scan showed an occlusive thrombus of the superior mesenteric vein and its tributaries, thrombus of the portal vein, mesenteric edema, and an infarct of the left lobe of the liver. Erythrocytosis and leukocytosis were noted with a Hemoglobin of 19 g/dL, Hematocrit of 54%, and White Blood Cell Count of 20thou/cmm. The multiple extensive thrombi caused decreased intestinal blood flow leading to a partial small bowel obstruction, lactic acidosis and bowel ischemia further complicating the patient's clinical status. Initial workup of the erythrocytosis was unrevealing with a normal erythropoietin level of 18mU/mL and a negative JAK2 mutation. The patient later disclosed that he was using exogenous testosterone in the form of a gel for the last two years. It was prescribed to him for nonspecific symptoms including fatigue and decreased strength. Exogenous testosterone use was determined to be the etiology of his clinical presentation. Therapeutic phlebotomy was required to normalize hemoglobin and hematocrit levels. Thrombi treatment was completed with heparin infusion and rivaroxaban was initiated for a total of twelve months. The partial small bowel obstruction and bowel ischemia were treated conservatively and resolved with initiation of anti-coagulation. Most importantly, he was advised to cease testosterone gel use.

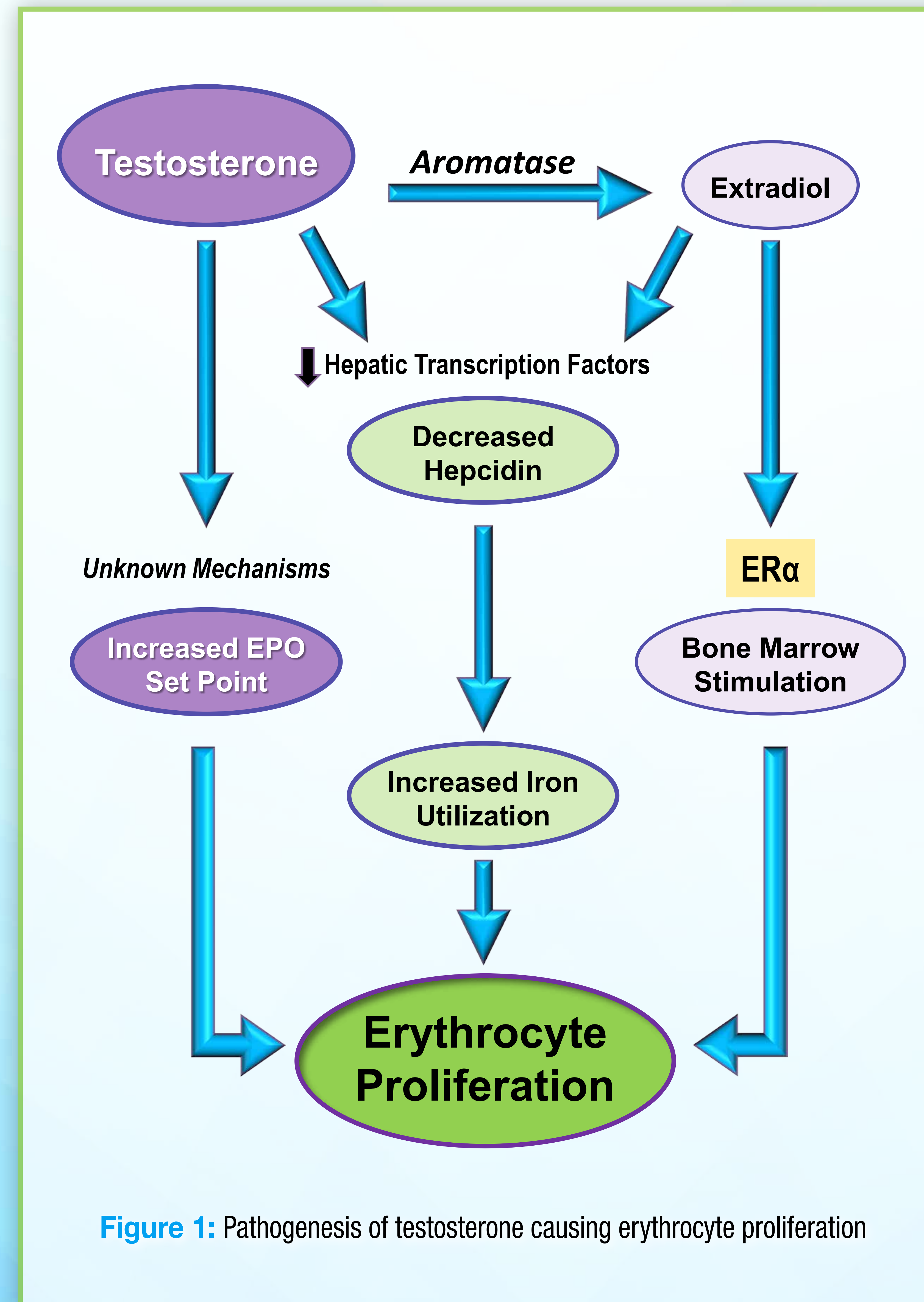


Figure 1: Pathogenesis of testosterone causing erythrocyte proliferation

Conclusion

- Exogenous testosterone use has increased more than seven fold in the last decade. Millions worldwide use testosterone for its beneficial effects with minimal knowledge of its potential serious complications.
- Erythrocytosis is a side effect of testosterone and is directly related to the increased risk of venous thromboembolism.
- While the relationship between erythrocytosis and thromboembolic disease has been established, the use of testosterone itself may impart an increased risk of thromboembolism.
- Most cases of thromboembolism are associated with high doses of intravenous or oral testosterone use. This case is a rare presentation of testosterone gel leading to multiple large mesenteric and portal venous thrombi with bowel ischemia and partial small bowel obstruction.

Image Reference:

Jones, Steven D., et al. "Erythrocytosis and Polycythemia Secondary to Testosterone Replacement Therapy in the Aging Male." *Sexual Medicine Reviews*, vol. 3, no. 2, 2015, pp. 101–112., doi:10.1002/smrj.43.

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