

## **Role of increased transforming growth factor beta protein expression in the pathogenesis of Peyronie's disease**

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Transforming growth factor beta (TGF-beta) has been implicated in many chronic fibrotic conditions such as pulmonary and hepatic fibrosis. Inhibition of TGF-beta activity can prevent the development of chronic hepatitis and mesangial proliferative glomerulonephritis. We postulated that TGF-beta might play a role in the pathogenesis of Peyronie's disease (a localized connective tissue disorder that primarily affects the tunica albuginea and adjacent erectile tissue of the penis). Tissue from the tunica albuginea of thirty-five Peyronie's patients (study group) and from eight patients without Peyronie's disease who had undergone penile prosthesis surgery for organic impotence (control group) were subjected to histological study using Hart and Trichrome stains and Western blotting for the detection of TGF-beta protein expression. TGF-beta1 protein expression was detected in 30 patients (85.7%), while only 8 (22.8%) and 6 (17.1%) patients showed TGF-beta2 and TGF-beta3 protein expression, respectively. All tissue from Peyronie's patients showed a variety of histological changes of the tunica, ranging from chronic inflammatory cellular infiltration to complete calcification and ossification of the tissues. The most prominent changes observed were focal or diffused elastosis, fenestration, and disorganization of the collagen bundles. One patient in the control group showed fibrosis of the tunica albuginea and protein expression of TGF-beta1 and TGF-beta2. This patient had undergone surgery for the revision of his prosthesis twice. However, the other seven patients showed normal histologic patterns of the tunica albuginea and no protein expression for TGF-beta1, TGF-beta2, or TGF-beta3. In conclusion, TGF-beta1 protein expression is significantly associated with Peyronie's disease and may be a direct cause for its development. This finding may be of help in the prevention and treatment of this disease.