
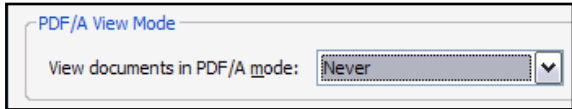
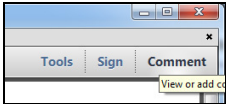
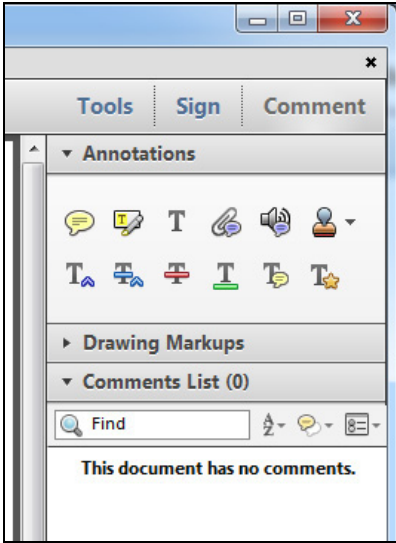
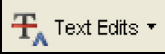


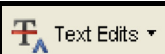

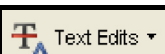





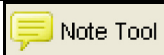




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HOW TO...		
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## REPLY

In 1953, Sophian reported experiments inflating balloons in rabbit uteri and watching their kidneys turn white; he released the stretch, and renal blood flow was promptly restored.<sup>1</sup> Dividing the uterorenal nerves abolished the reflex. He proposed that activating uterorenal nerves (cf, cardiorenal, hepatorenal, lienorenal, etc) was the mechanism for renal cortical ischemia in preeclampsia. On his evidence, preeclampsia is a disorder of uterine stretch.

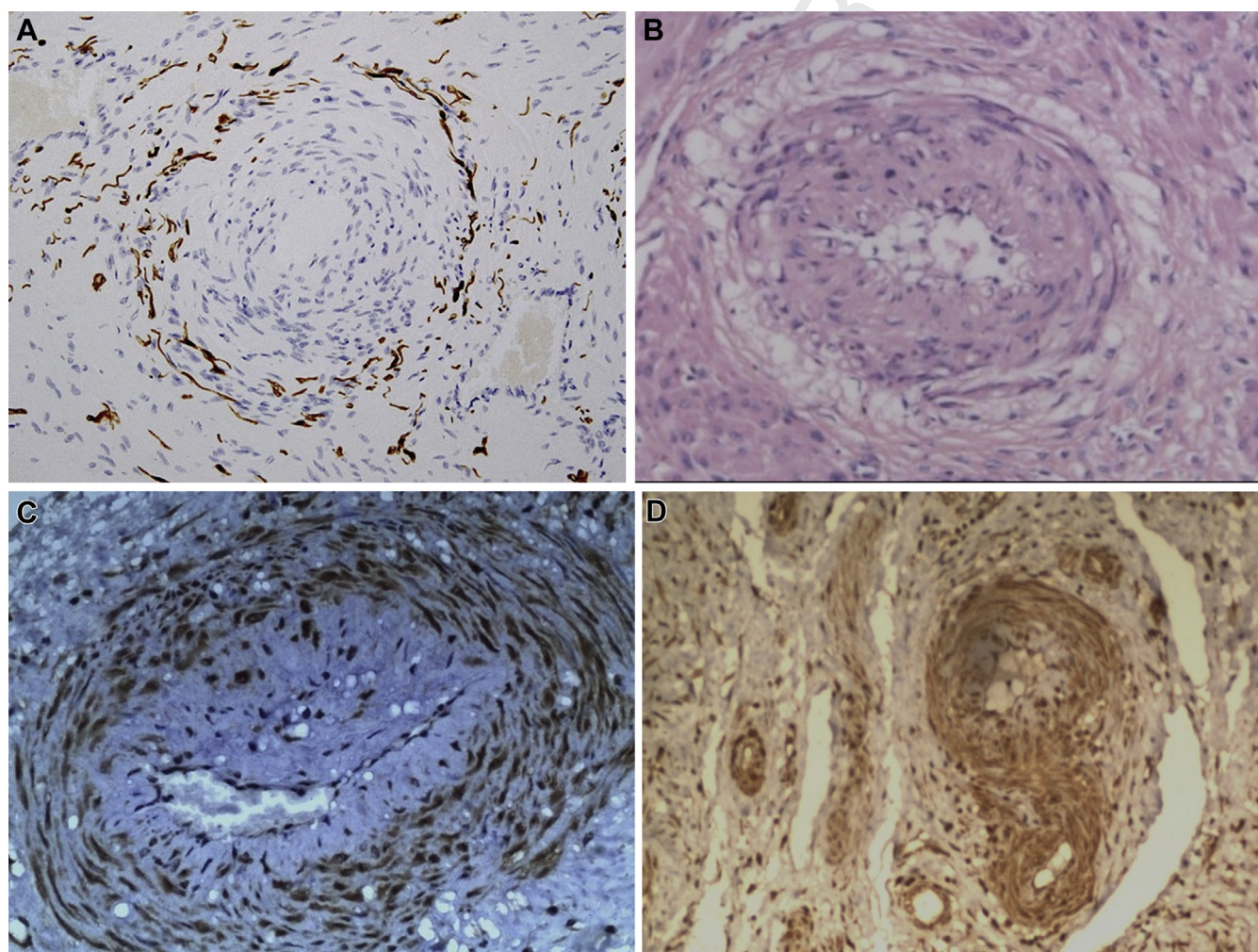
Two recent observations have prompted renewed interest in this hypothesis.<sup>2-4</sup> First, prepregnancy injuries to uterine

vasomotor nerves release cytokines and growth factors that result in the regeneration of abnormal injured nerves and hyperplasia of adjacent, denervated, arteriolar walls in preeclampsia<sup>2</sup> (Figure, A and B).

Second, these injuries induce specific, purinergic, P2X3, stretch receptors in the walls of uterine arterioles, providing a direct mechanism for activating uterorenal nerves that redistribute renal blood flow from the cortex to the medulla<sup>1,3</sup> (Figure, C and D). Removal of the stretch at delivery reverses these renal effects, and the hypertension resolves promptly.

## FIGURE

## Injured uterine arterioles in obstetric and gynecologic syndromes



**A**, A narrowed uterine arteriole in a painful, non pregnant uterus (anti-S100,  $\times 100$ ) demonstrates a halo of injured nerves around the circumference of a narrowed arteriole with irregular hyperplasia of the tunica media. **B**, A narrowed, uterine arteriole in a pregnant uterus demonstrates a halo of hyalinized cells around the circumference of an injured arteriole with irregular hyperplasia of the arteriolar wall (hematoxylin and eosin,  $\times 100$ ). During pregnancy, injured nerves cannot extend from the isthmus of the uterus to the placental bed, although the injured arterioles and nerve sheaths can do so, accounting for the similar, although different, appearances in pregnant (B) and nonpregnant (A) uteri. **C and D**, Purinergic, P2X3, stretch receptors (brown) are induced in arteriolar walls and injured myometrium in pregnancy hysterectomy specimens removed for postpartum hemorrhage (anti-P2X3,  $\times 100$ ).

Does Professor Brosens consider a prepregnancy injury to uterine nerves a plausible explanation for defective deep placentation in the Great Obstetric Syndromes, and might it better explain their relationship to some gynecologic syndromes<sup>4,5</sup> (Figure, A–D)? ■

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The authors report no conflict of interest.

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