

# Actas Urológicas Españolas

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## LETTERS TO THE EDITOR

### Tenofovir, an antiviral agent with low spermistatic activity

### Tenofovir, agente antiviral con escasa actividad espermiostática

Dear Editor,

In July 2010, an interesting article<sup>1</sup> was published in the prestigious journal *Science*, which led to many comments in the media. The article informed on the results of a clinical trial (CAPRISA 004) carried out between 2007 and 2010 in the urban and rural areas of the KwaZulu-Natal province in South Africa, with a 1% tenofovir-based vaginal gel to prevent HIV infection. The study describes that the tenofovir-based vaginal gel reduces the probability of HIV infection by 39% and that it had few side effects in the women that used it during the trial.

After reading this article and bearing in mind the experience of our group,<sup>2,3</sup> the question arose as to whether in addition to preventing HIV infection, 1% tenofovir could also have spermicidal activity. This fact would be an advantage and give added value to its use as an antiviral. To explain this action, four semen samples obtained by masturbation from apparently healthy subjects were studied. Initially, a routine semen analysis was performed to check whether each sample complied with the minimum standards required to show some action of the medicine, i.e., whether it complied with the parameters of normality established by the World Health Organization (WHO) in 1999, such as >50% progressive motility and >70% viability. Subsequently, the sperm was incubated with a solution of tenofovir dissolved in a 0.85% saline solution (1% of the component) in a proportion of 1:1 for 5 minutes, and the effect on sperm motility was checked at: 20 seconds, 1, 2, 3, 4 and 5 minutes. According to the WHO, we describe sperm displacement as: a: >25 μm/sec, b: 5–25 μm/sec, c: <5 μm/sec and d: motionless.

**Figure 1** Effect of 1% Tenofovir on sperm motility. There are differences between motility a (\*,  $p < 0.05$ ) and b (#,  $p < 0.05$ ; &,  $p < 0.001$ ), between control samples and samples treated in the periods indicated.

After 2 minutes of contact with 1%tenofovir, motility a underwent a significant decrease in relation to the control sample ( $p < 0.05$ ) (fig. 1). In the case of motility b, no significant difference was observed with respect to the control sample in any of the treatment periods with the 1% tenofovir solution ( $p > 0.05$ ), however, it was apparent that this type of motility was different in the sperm treated with the 1%tenofovir solution when compared to that which was not, as it was slower and the tail propulsion pattern and head movement were different; lastly, as regards motility d, there was a significant increase in comparison to the untreated sperm and that treated with 1%tenofovir in four-minute ( $p < 0.05$ ) and five-minute periods ( $p < 0.01$ ).

These results on the spermicidal activity of some molecules are encouraging, in the sense that they boost the search for spermicides that also have antiviral activity, particularly anti-HIV. According to preliminary observations, despite 1%tenofovir having a moderate sperm immobilising effect, it cannot be classified as a spermicide.

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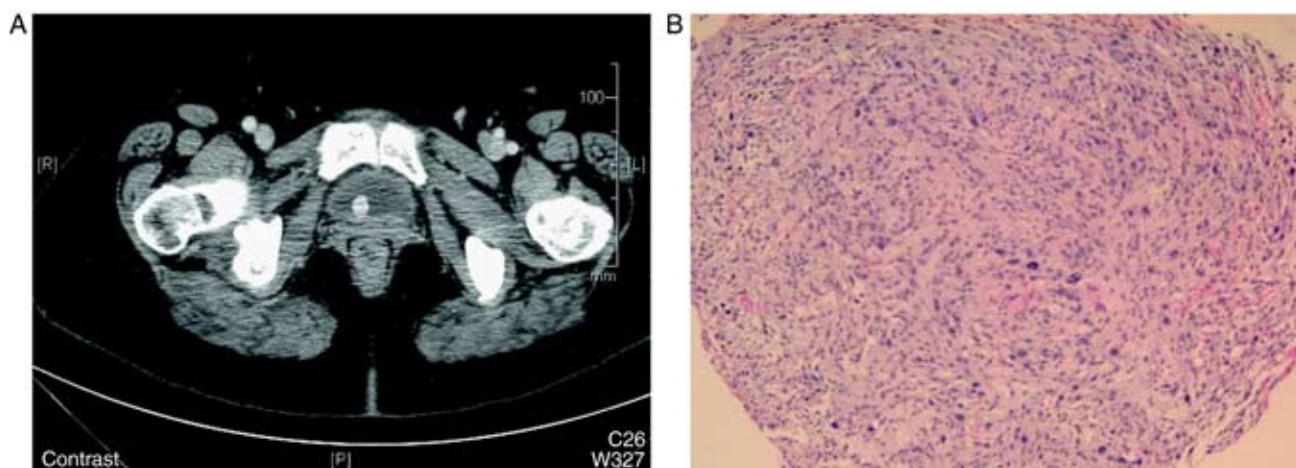
## Gastrointestinal stromal tumour in the urinary bladder

### Tumor del estroma gastrointestinal en la vejiga urinaria

Dear Editor,

GISTs (gastrointestinal stromal tumours) are mesenchymal tumours that are most frequent in the gastrointestinal tract and represent 5% of all sarcomas. They have an estimated annual incidence in 14.5 million, a prevalence of 129 per million and 6,000 new cases per year are published in

North America.<sup>1</sup> Formerly, these tumours were classified as leiomyosarcomas, leiomyoblastomas or schwannomas. They present immunophenotypic characteristics of smooth muscles and positivity of the cells of the myoenteric nervous system; furthermore, they have c-kit and express KIT. The fact that Cajal's interstitial cells are positive for KIT and CD34 hints at the possibility that these cells cause these tumours. They most frequently first appear in the stomach (50-60%) and in the small intestine (25%), however they may appear in any part of the gastrointestinal tract.<sup>1</sup> They are rare outside the gastrointestinal tract and it is thought that their location in the mesentery, omentum or retroperitoneum is most likely due to metastasis or tumour



**Figure 1** A) 13 x 10 mm nodular lesion on bladder wall. B) H-E x20 histological image of neoplastic proliferation.