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Seth J[1], Sahai A[1], Lashley T[1], Apostolidis A[1], Panicker J[1], Dasgupta P[1], Fowler C[1]
1. *Institute of Neurology, Queen Square*

ROLE OF INTERSTITIAL CELLS IN DETRUSOR OVERACTIVITY

Hypothesis / aims of study

Introduction: Interstitial cells of Cajal like cells (ICCs) have been implicated in the pathophysiology of detrusor overactivity and are thought to have a role in various forms of bladder dysfunction. It is believed to play a key role in signal transmission between the urothelium and afferent nerves. To assess this further we aim to quantify suburothelial ICCs in human detrusor overactivity and also see whether ICCs harbor muscarinic and purinergic sensory receptors.

Study design, materials and methods

Flexible cystoscopic biopsies were obtained from patents with neurogenic and idiopathic detrusor overactivity (NDO)(n= 10) and (IDO)(n=4) before and after botulinum toxin A (BTX-A) treatment. Biopsies were studied with quantitative immunoflourescence using antibodies to C-kit and mast cell tryptase (MCT). Numbers of cells were counted manually by three different, blinded observers.

Results

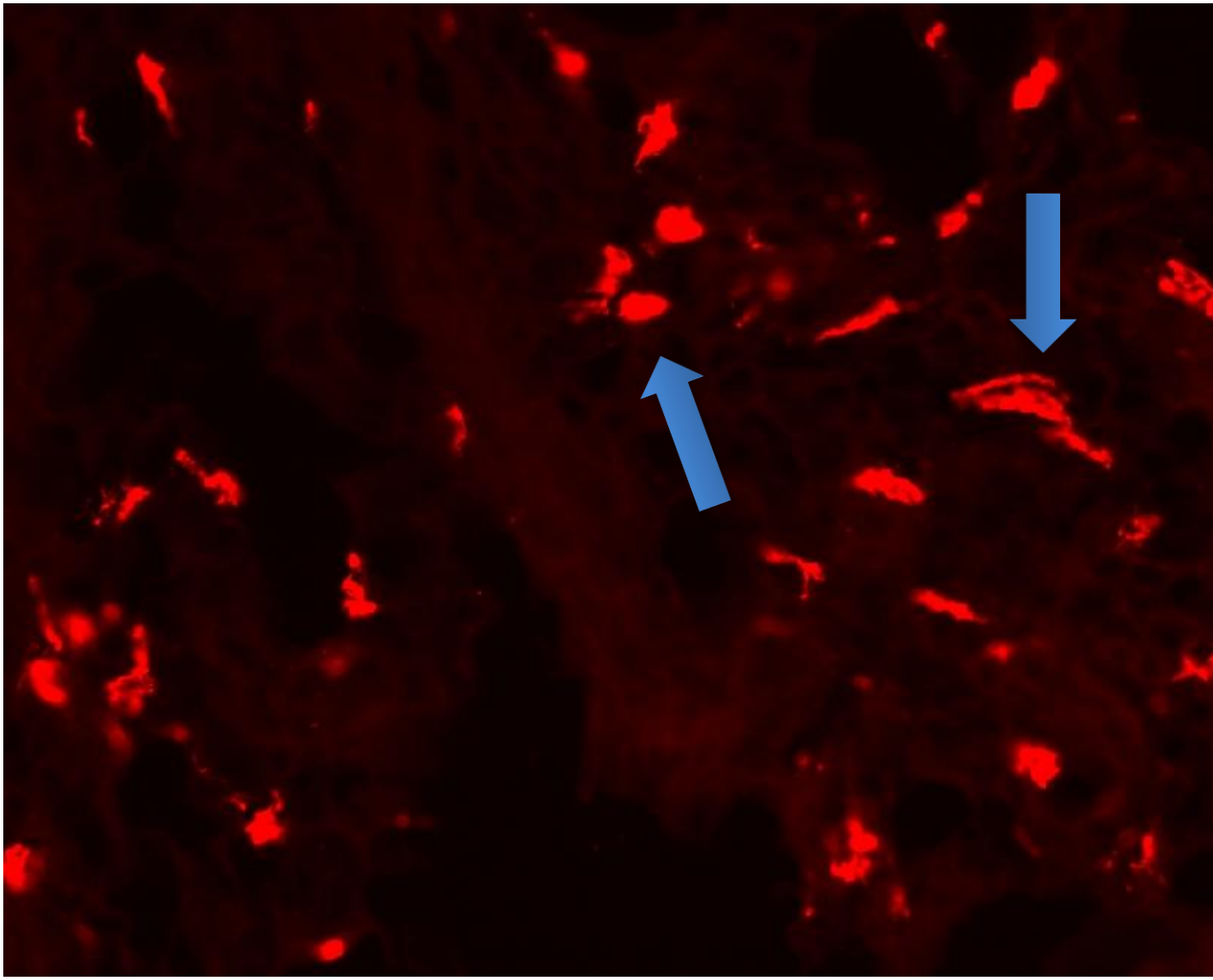
Results: Suburothelial opulations of spindle shaped. elongated cells were acquired with staining for CKIT. Round cells were observed with staining with MCT. These can be seen in figures 1 and 2. Mean numbers of C-kit and MCT cells decreased after BTX-A treatment from 23.8 to 13.8 and 15.3 to 6.9 respectively in NDO, although the former was not to significance. Co-localisation of P2Y6 and M1 receptors with C-kit positive cells were also apparent.

Interpretation of results

There is a trend for Mast cells to downregulate after BTX-A treatment in detrusor overactivty. There are no significant changes with regards to numbers of CKIT cells. We have demonstrated both muscarinic and P2Y6 receptors on ICC's in the human suburothelium which may be relevant in signal transduction to afferent nerves.

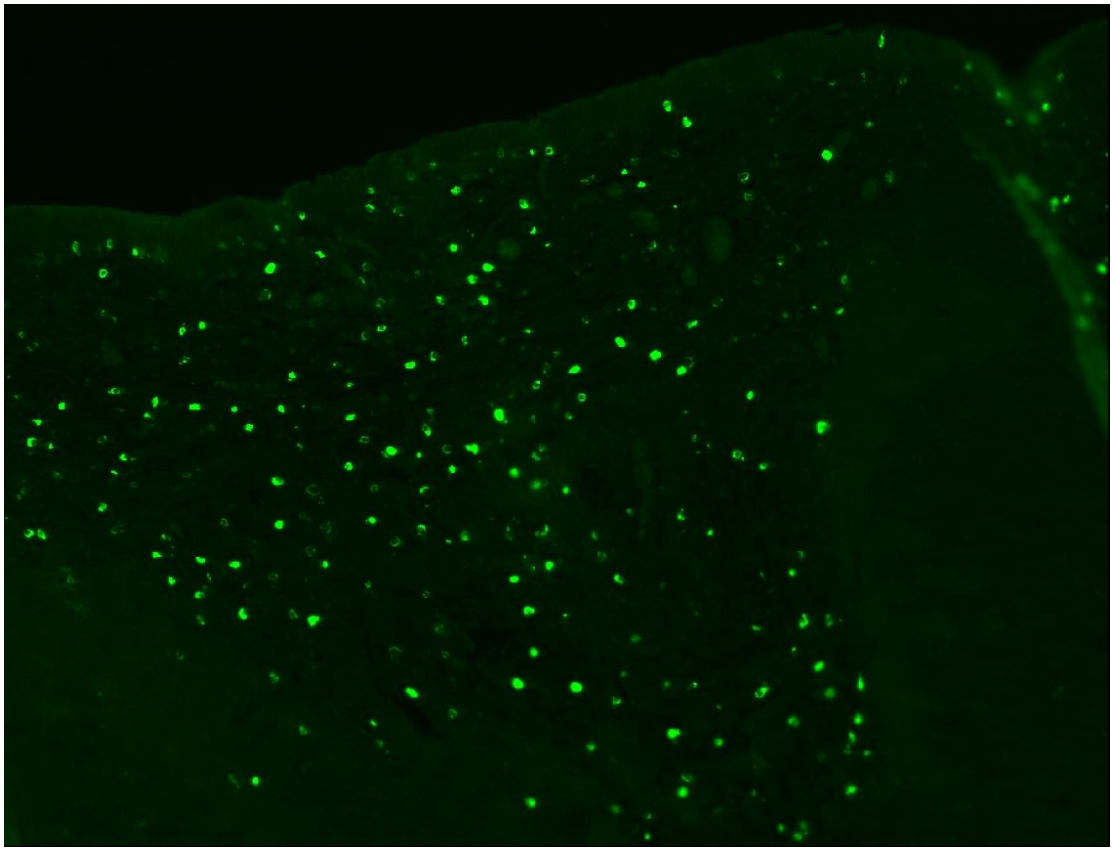
Concluding message

Figure 1



Staining with CKIT showing elongated cells thought to be interstitial cells and round shaped cells thought to be mast cells.

Figure 2



Disclosures
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