

## Insight into long-term histological, proliferative and apoptotic modifications in ileal orthotopic neobladder and conduit mucosa

Athanasios E Dellis<sup>1</sup>, Maria Demonakou<sup>2</sup>, Athanasios G Papatsoris<sup>1</sup>, Michail Chrisofos<sup>1</sup>, Aris Bamias<sup>3</sup>, and Charalambos Deliveliotis<sup>1</sup>

<sup>1</sup>2<sup>nd</sup> Department of Urology, School of Medicine, University of Athens, Sismanoglio General Hospital, Athens; <sup>2</sup>Department of Pathology, Sismanoglio General Hospital, Athens; <sup>3</sup>Department of Oncology, School of Medicine, University of Athens, Alexandra General Hospital, Athens, Greece

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### ABSTRACT

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**Aims and background.** To assess the long-term histological, apoptotic and proliferating alterations of the intestinal mucosa of ileal conduits and orthotopic neobladders.

**Methods.** Fifty patients (46 males, 4 females), aged 52-78 years, who underwent urinary diversion with either ileal orthotopic neobladder (group ON, 20 patients) or conduit (group IC, 30 patients) from 2001 to 2005, were included in this prospective study. Ileal samples were collected during surgery (controls) and by random mucosal biopsies 6, 12, 24, 36 and 48 months later. Histological (villi height, crypt depth, eosinophil cell count), proliferation (Ki67 immunohistochemistry), and apoptotic (Bcl-2 immunohistochemistry, TUNEL) parameters were assessed.

**Results.** During the 4-year follow-up, we recorded progressive villi area, height and crypt depth reduction, mucosa flattening, and inflammatory and eosinophilic infiltration. Villi height: crypt depth ratio showed a statistically significant difference ( $P < 0.05$ ) between the two groups from the 6<sup>th</sup> month. Dysplasia, metaplasia, and neoplasia were not observed. Bcl-2 values showed a progressive increase until 24 months in group ON and 12 months in group IC, followed by a decline thereafter. Ki-67 values showed a progressive increase after 6 months in group ON and an increase until 24 months followed by a decline thereafter in group IC. TUNEL showed two peaks, at 24 and 48 months.

**Conclusions.** Histological adaptation was revealed in both groups, with statistically significant differences in favor of orthotopic substitution. Proliferative and apoptotic pathways are implicated as demonstrated by relevant modifications of Bcl-2, Ki-67 and TUNEL, in accord with the histological adaptation.

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**Key words:** apoptosis, cystectomy, ileal mucosa, proliferation.

Correspondence to: Dr Athanasios Eleftherios Dellis, MD, PhD, FEBU, Consultant 2<sup>nd</sup> Department of Urology, School of Medicine, University of Athens, Sismanoglio General Hospital, 35A, K. Varnali St., Chalandri, Athens, 15233 Greece.

Tel +302106839498;

fax +302106839498;

e-mail athan\_dellis@yahoo.gr

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