

# Histologic responses of different bulking agents which are used for endoscopic reflux treatment, on rats' bladder and subcutaneous tissue

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### Introduction & Objectives

To compare the histologic responses of 3 bulking agents (2 different dextranomer materials, 1 polyacrylate material) in Turkey, on rat bladder and subcutaneous tissue.

### Material & Methods

Thirty rats are divided into 3 different groups and each group was injected with Dextranomer Hyaluronic acid- Deflux® (DxHA-Df), Dextranomer Hyaluronic acid- Dexell® (DxHA-Dx) and Polyacrilate Polialcohol Copolymer-Vantris® (PPC). In each group, 5 rats are scarified at 2<sup>nd</sup> and 6<sup>th</sup> month of injection. The histopatologic comparement has done by scoring inflammation, neutrophil, eosinophil, macrophage, mast cell and giant cell reaction at both inside and outside of the injected material.

### Results

All the materials had the same amount of capsule formation around which was unrelated with the degradation property of the material (Table 1). All materials maintained their bulky effect during the study. Despite the big amount of degradation with dextranomer material, there was minimal degradation with PPC. The inflammation around PPC was high at 6<sup>th</sup> month significantly (Inflammation score of DxHA-Df, DxHA-Dx, PPC are 1, 1, 3,5; p=0,027). For subcutaneous injections mast cell scores around injection (DxHA-Df, DxHA-Dx, PPC are 1; 1,75; 0; p=0,007) and macrophage scores inside injection (DxHA-Df, DxHA-Dx, PPC are 2; 0,5; 1; p=0,009) was significantly different at 6<sup>th</sup> month. At 2<sup>nd</sup> month mast cell scores around injection (DxHA-Df, DxHA-Dx, PPC are 1,41; 2; 0; p=0,024) and giant cell scores inside injection (DxHA-Df, DxHA-Dx, PPC are 1; 0,8; 0,33; p=0,026) was significantly different. Only statistically different score for bladder injections was eosinofil score inside the injection (DxHA-Df, DxHA-Dx, PPC are 0; 0; 1; p=0,026).

### Conclusions

Long term results show that both dextranomer agents was degradable with good capsule formation and minimal foreign body reaction at the adjacent tissue. Whereas

PPC material degraded minimally and cause significant foreign body reaction on adjacent tissue. We think the fibrosis that caused by this foreign body reaction may have clinical implications.

**Table 1 Comparison of average capsule thickness of different injection materials both on bladder and subcutaneous tissue (n: number of rats).**

<b>Material</b>	<b>Average Thickness of Capsules (nm)</b>			
	<b>2nd month (Subcutaneous)</b>	<b>6th month (Subcutaneous)</b>	<b>2nd month (Bladder)</b>	<b>6th month (Bladder)</b>
<b>DxHA-Dx</b>	<b>77,78 (n : 5)</b>	<b>99,23 (n : 4)</b>	<b>73,70 (n : 2)</b>	<b>66,77 (n : 3)</b>
<b>DxHA-Df</b>	<b>85,57 (n : 5)</b>	<b>89,22 (n : 4)</b>	<b>69,62 (n : 3)</b>	<b>73,22 (n : 5)</b>
<b>PPC</b>	<b>84,11 (n : 3)</b>	<b>114,58 (n : 4)</b>	<b>68,59 (n : 3)</b>	<b>73,20 (n : 5)</b>
<b>p value</b>	<b>0,590</b>	<b>0,552</b>	<b>0,895</b>	<b>0,553</b>