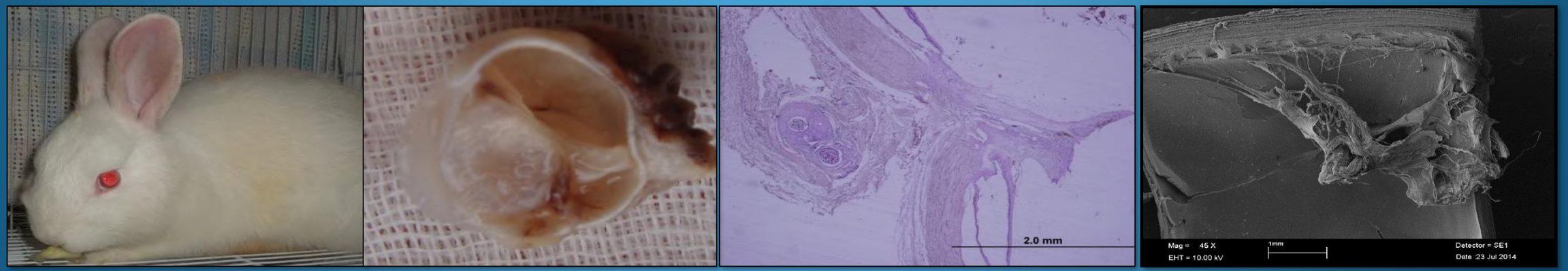
TO COMPARE THE EFFECTS OF INTRAVITREAL ANTI-VEGF AND DEXAMETHASONE IN EXPERIMENTAL POSTERIOR PENETRATING EYE INJURY



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- Ocular trauma is an important cause of visual loss and disability.
- Penetrating ocular injuries involving posterior segment structures usually have poor prognosis.
- It causes intraocular fibrous tissue proliferation and tractional retinal detachment which can lead to phthisis of the globe.

PURPOSE

- The study aimed to compare the effect of intravitreal anti-vascular endothelial growth factor (VEGF) and dexamethasone in an experimental rabbit model of posterior penetrating ocular injury.

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METHODS

- Thirty white New Zealand rabbits were included in the study.
- A posterior penetrating ocular injury was performed with a 5-mm circumferential incision placed 8 mm behind the limbus at the superotemporal quadrant. Autologous blood was injected through a 25 gauge needle through the wound into the mid-vitreous in all eyes

METHODS

- They were randomly divided into three groups.
- The rabbits in group 1 (n:13) received 1 mg (0.1 mL) of intravitreal dexamethasone.
- In group 2 (n:13) they received 1.25 mg (0.05 mL) of intravitreal bevacizumab
- In group 3 (Control groups, n:4) the rabbits received 0.05 mL of intravitreal physiological saline solution (%0,9) in both eyes.

METHODS

- All eyes were examined ophthalmologically on the 1st, 3rd, 7th, 14th and 28th days following the injury and the clinical findings were scored.

- On the day 28, the eyes were enucleated, evaluated and scored macroscopically, histopathologically.

- Scanning electron microscopic evaluation was performed.

RESULTS:

- The median macroscopic score of the dexamethasone group was significantly better than that of control group (p=0.004 and p=0.018).

- Dexamethasone group was also better than that of bevacizumab group.

	Group 1: Dexamethasone	Group 2: Bevacizumab	Group 3: Control	P
Macroscopic Score	1(1-5)	2 (1-5)	4 (1-5)	0.033

RESULTS:

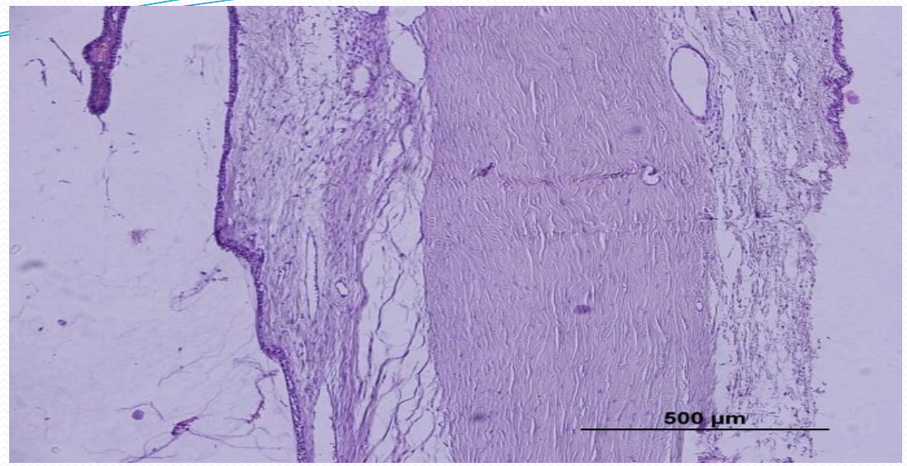
- Retinal detachment rate :
- Group 1: 8.3%
- Group 2: 16.6%
- Group 3: 12.5%

RESULTS:

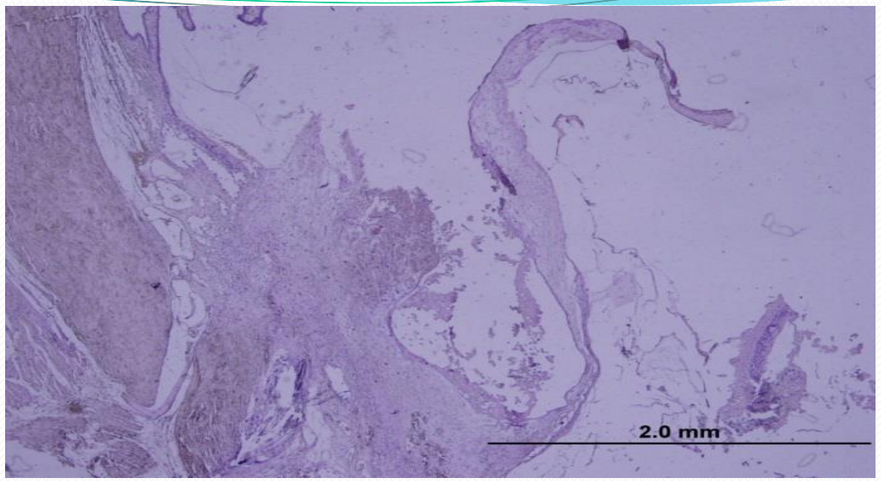
- More extensive fibrocelluler proliferations were observed in controls compared with dexamethasone and bevacizumab groups .

	Group 1: Dexamethasone	Group 2: Bevacizumab	Group 3: Control	p
Fibrocelluler proliferations at the wound site	1(1-3)	2 (1-3)	3 (1-3)	0.538

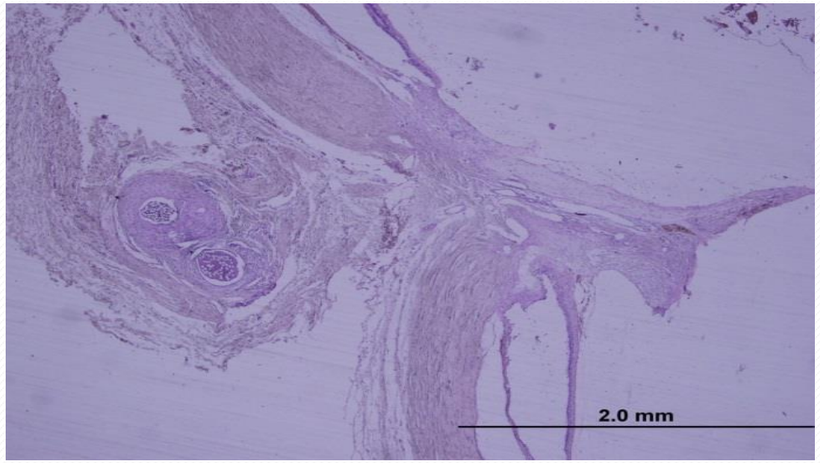
The histopathologic scoring for evaluation of the extent of fibrosis among groups



(A)



(B)



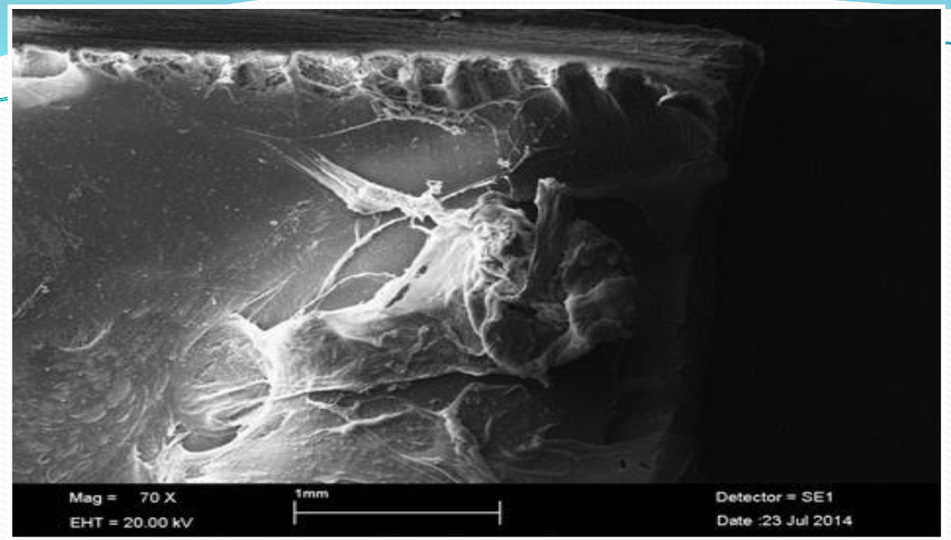
(C)

The histopathologic scoring for evaluation of the extent of fibrosis: (A) mild fibrosis, (B) moderate fibrosis, and (C) severe fibrosis

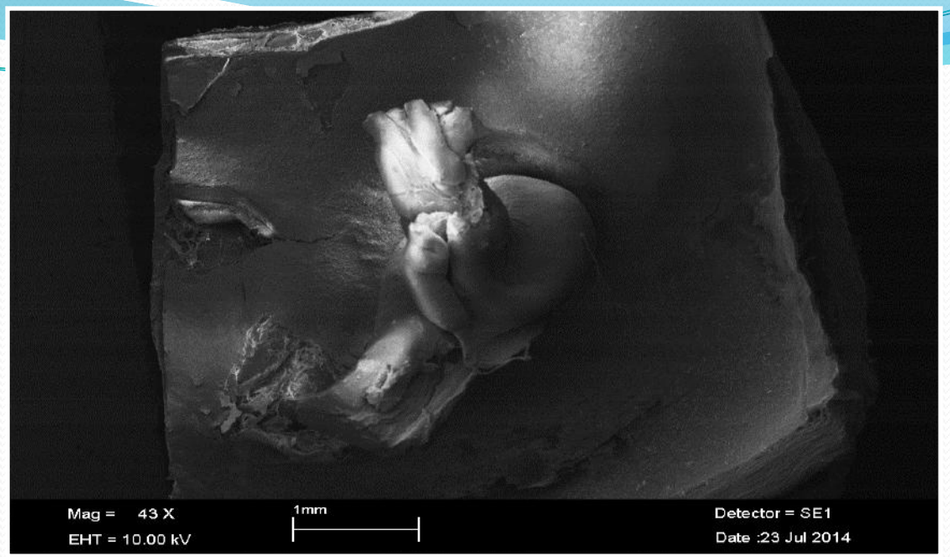
SEM Analysis

- In scanning electron microscopy all groups showed fibreous stalk and dense collagen fibrils in the vitreous.
- The extension of the fibrous tissue:

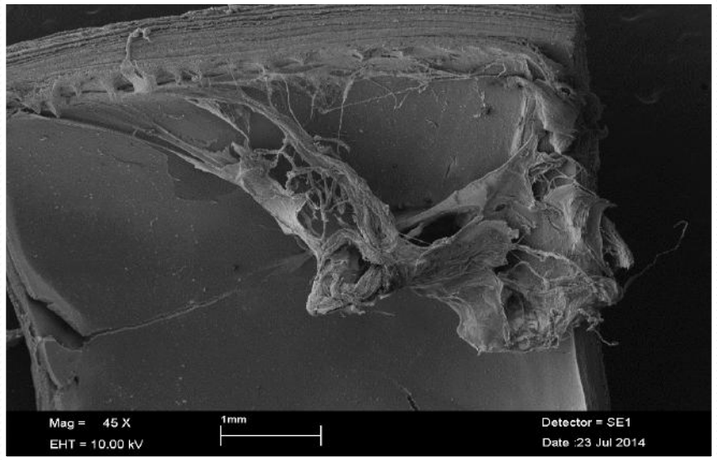
  Group 1<Group 2<Group 3
- The best results were in Group 1



Dexamethasone group



Bevacizumab group



Control group

CONCLUSIONS:

- Our study showed that dexamethasone group had better results than the controls and bevacizumab group in preventing fibrocelluler proliferation and tractional retinal detachment.

- Bevacizumab group also had better results than the controls in preventing fibrocelluler proliferation.

CONCLUSIONS:

- Corticosteroids are known to limit the invasion and lysis of the vitreous collagen by inflammatory cells and to have an inhibitory effect on the growth of fibroblasts.

- This study shows that intravitreal injection of both dexamethasone and bevacizumab may reduce the intraocular proliferation after an experimental posterior penetrating ocular injury in rabbits.

THANK YOU
FOR YOUR INTEREST