## عنوان مقاله:

Effectiveness of Methylene Blue in the Prevention of Stifle Joint Arthrofibrosis in Rabbit Models

## محل انتشار:

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## خلاصه مقاله:

Background: One of the major challenges in orthopedic surgery is the prevention of arthrofibrosis, which can besuccessfully alleviated in its early stages. Many studies suggest the administration of methylene blue (MB) as anaccessible and effective agent for the prevention of post-operation adhesions. The purpose of this study was to evaluatethe efficacy of MB in the prevention of arthrofibrosis.Methods: This study was conducted on 18 New Zealand white female mature rabbits. The anterior cruciate ligamentof the left stifle joint of each animal was cut during aseptic surgery. In the next step, the rabbits were divided into threegroups based on their treatments. The rabbits in the first, second, and third groups were subjected to the injection ofnormal saline, 1% MB solution, and 2% MB solution into their synovial space, respectively. The postoperative stiflerange of motion was measured every week. After 4 weeks, the animals were euthanized and all joints were dissectedfor histopathology.Results: The histopathological evaluation of tissues indicated the presence of fibrotic connective tissue as a sign offibrosis in all groups. The fibrosis rate, inflammatory rate, tissue disarrangement, fibroblastic cellularity, and granulationtissue formation were at their highest levels in the 1% MB group. The integrity of articular cartilage in the 2% MB groupwas lower than the other groups. The level of bone degeneration was similar in both MB groups; however, it was morethan the control saline group. The range of motion was reduced during the first week, then increased in the second andthird weeks, and finally decreased in the fourth week.Conclusion: The MB was not an effective method regarding the prevention or treatment of arthofibrosis and thesubsequent osteoarthritis. In contrast with previous studies, fibrosis was lower in the high dose MB group, comparedto the low dose MB group. The alterations in the range of motion were related to the reduced movement caused by thepain and stiffness of the operated joints. The current study can be considered as the first report addressing the adverseeffect of MB on synovial components.

## کلمات کلیدی:

anterior cruciate ligament, Arthrofibrosis, Fibrosis, Methylene blue, Stifle