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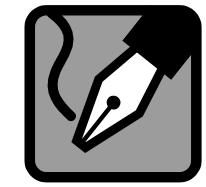

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The Possible Role of Botulinum Toxin A in the Structural Regeneration of Gastrocnemius Muscle and Achilles Tendon of Albino Rat after Experimental Achilles Tenotomy

Thesis

Submitted for the Partial Fulfillment of
Master Degree in **Anatomy**

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2015

الدور المحتمل لتوكسين البوتولينوم أ في إستعادة التركيب البنائي لعضلة الساق التوأمية ووتر أخيلس في الفأر الأبيض بعد القطع التجريبي للوتر

رسالة

توطئة للحصول على درجة الماجستير في العلوم الطبية الأساسية (التشريح)

مقدمة من

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Acknowledgement

First, thanks to ***GOD,*** *the greatest of all, for completing this work.*

My profound thanks and appreciation to ***Professor Soheir Ibrahim Saleh,*** *Professor of Anatomy, Faculty of Medicine, Ain Shams University, for her valuable supervision, guidance, encouragement and inexhaustible repeated revision of every item in this work. This work could not have reached its goal without her support, starting from the main idea till reaching the final goal .*

I would especially like to express my deep appreciation to ***Professor Dalia Fawzi kallini,*** *Professor of Anatomy, Ain Shams University, for her fruitful suggestions and valuable remarks that helped me in the final production of this work.*

My cordial thanks are conveyed to ***Doctor. Hani Waheeb Abd El-Malak,*** *Lecturer of Anatomy, Ain Shams University for his guidance and help, despite his illness.*

Also, I would like to express my deepest thanks to ***Professor: Hany Shawky Nadim,*** *Professor and Head of Anatomy Department, Faculty of Medicine, Ain Shams University for his great help and support.*

Finally, I would like to express my deepest thanks to my family especially my father and my husband who stood beside me throughout this work giving me their support, sympathy and guidance.

Introduction

A tendon lesion, not recovering quickly, results in degeneration of injured tendon, which in turn induces partial disuse of the muscle mass, which consequently atrophies by striated muscle fiber apoptosis (**Palumbo et al., 2012**).

Moreover, tendon lesions are most commonly managed with surgical repair. Postoperative complications such as adhesions often occur with immobilization. Early postoperative mobilization is therefore advised to minimize complications and the time required to return to normal daily life **(Tuzuner et al., 2013).**

Furthermore, among all sports injuries, Achilles tendon rupture has a substantial potential to cause significant morbidity. Only 50–60% of elite athletes are able to return to their pre-injury levels following the injury **(Huri et al., 2013).**

The optimal treatment for Achilles tendon rupture remains controversial. In recent studies, non-operative intervention is advocated **(Barfod et al., 2013).**

On the other hand, botulinum toxin A (Botox) is a potent biological toxin, widely used for the management of skeletal muscle spasticity or dynamic joint contracture.

Following intramuscular injection of Botox, a sequence of cellular events was reported, leading to neuromuscular junction stabilization, myogenesis and muscle function recovery **(Shen et al., 2006).**

Recently, some experimental studies documented the beneficial effect of intramuscular injection of Botox on rapid healing of tendons via increased collagen fiber organization at the tendon bone interface **(Hettrich et al., 2011 & Tuzuner et al., 2013).**

However, few studies dealt with the effect of Botox injection on the histological alteration of both muscle and tendon after experimental tendon lesion**.**