



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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جامعة عين شمس

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قسم

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Cyto-biochemical Studies for Diagnosis of Some Joint Affections in Horses

A thesis submitted by

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**For the degree of Master
(Clinical Pathology)**

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Abstract

Naturally occurring joint disease is one of the major causes of wastage in horses. The aim of this study was to evaluate the diagnostic value of matrix metalloproteinase (MMP) -2 and -9, cyclooxygenase -2 (COX-2) enzymes, in synovial fluid of horses with different forms of joint disease. Thirty-two horses divided into three groups were involved in this study. Group I control (n=12), group II, septic arthritis (n=5), and group III, aseptic arthritis (n=15). All horses were clinically examined, and injured joints were radiographed. Blood, synovial fluid, and synovial membrane samples were collected and routinely examined. Synovial fluid was used for assessment of MMP-2 and -9 activity by gelatin zymography while COX-2 relative gene expression was determined by quantitative reverse transcriptase polymerase chain reaction (qRT-PCR). Serum albumin was significantly decreased while calculated globulins were elevated in group II, suggestive of an acute phase response. Synovial fluid protein content and total nucleated cell count (TNCC) were increased in group II, unlike groups I and III, indicating the presence of severe inflammation. Synovial fluid MMP-2 and -9 analysis showed significant gelatinolytic activity for MMP-9 in group II while MMP-2 was insignificantly expressed. COX-2 exhibited a 50-fold expression change in group II and a 4.5-fold expression change in group III compared to control animals. In conclusion, the results confirm that the detection of MMP-9 and COX-2 is shown to have an important diagnostic potential for arthritis in horses.

Keywords: Arthritis; COX-2; Horses; MMP-2; MMP-9.

Dedication



To my supportive family

To my dear friends

and

*To everyone who supported me
during my work,*

Acknowledgement

*It's by the grace of **Allah** the most glorified, the most high, that this work was accomplished. **Allah** bestows upon me much bliss and mercy every moment of my life, Alhamdulillah; Praise be to Allah, much good and blessed praise.*

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