



Cairo University  
Faculty of Veterinary Medicine



# Clinical Studies on Some Reproductive Disorders in Bitches

Thesis submitted by

**Samaa Mohamed Galal Mostafa Abdelmoaty**

**(B.V.Sc., Cairo University, 2014)**

for

**(M.V.Sc. degree)**

**(Theriogenology)**

Under Supervision of

**Dr. Sayed Taha Ismail**

Professor of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University

**Dr. Mohamed Shehata El-Belely**

Professor of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University

**Dr. Mohamed Fathi Mohamed**

Lecturer of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University

2018





Cairo University  
Faculty of Veterinary Medicine  
Department Of Theriogenology

## APPROVAL SHEET

This is to approve that the thesis presented by:

**Samaa Mohamed Galal Mostafa Abdelmoaty**

Entitled:

**" Clinical Studies on Some Reproductive Disorders in Bitches "**

For the M.V.Sc. Degree in Veterinary Medicine (Theriogenology) is approved by the judgment committee:

**Prof. Dr. Mahmoud Mohamed Hussein**

Professor of Theriogenology

Faculty of Veterinary Medicine, Banysuif University.

**Prof. Dr. Refaat Sobhy Ahmed Ragab**

Professor of Theriogenology

Faculty of Veterinary Medicine, Cairo University.

**Prof. Dr. Sayed Taha Ismail**

Professor of Theriogenology

Faculty of Veterinary Medicine, Cairo University. (Supervisor)

**Prof. Dr. Mohamed Shehata El-Belely**

Professor of Theriogenology

Faculty of Veterinary Medicine, Cairo University. (Supervisor)





**Cairo University**  
**Faculty of Veterinary Medicine**  
**Department of Theriogenology**

**Supervision Sheet**

**Prof. Dr. Sayed Taha Ismail**

Professor of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University

**Prof. Dr. Mohamed Shehata El-Belely**

Professor of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University

**Dr. Mohamed Fathi Mohamed**

Lecturer of Theriogenology  
Faculty of Veterinary Medicine  
Cairo University



**Cairo University**  
**Faculty of Veterinary Medicine**  
**Department of Theriogenology**

**Curriculum vitae**

**Name** : Samaa Mohamed Galal Mostafa Abdelmoaty  
**Gender** : Female  
**Date of Birth** : 28\1\1993  
**Nationality** : Egyptian  
**Religion** : Muslim  
**Place of Birth** : Saudi Arabia  
**Address** : Cairo, Egypt  
**Mobile** : 01002454965  
**E-mail** : [samaa910@gmail.Com](mailto:samaa910@gmail.com)  
**Specification** : Theriogenology  
**Affiliation** : Demonstrator at Theriogenology Department,  
Faculty of Veterinary Medicine, Cairo University  
**Degree** : M.V.Sc.  
**Thesis Title** : Clinical Studies on Some Reproductive Disorders in Bitches  
**Supervisors** : Prof. Dr. Sayed Taha Ismail  
Prof. Dr. Mohamed Shehata El-Belely  
Dr. Mohamed Fathi Mohamed



## Abstract

The present work aimed to investigate incidence, applying some traditional and modern diagnostic aids as well as applying suitable treatments including medical therapy and surgical operations for the different reproductive disorders in bitches. Moreover, prognosis for the different interferences and their effects on the future reproduction of bitches were illustrated. The current study was carried out on 107 bitches, from 14 breeds with different ages, admitted to the clinic of Theriogenology department, Faculty of Veterinary Medicine, Cairo University in addition to some private pet clinics. This research was conducted during the period between February 2017 and September 2018.

Detailed diagnosis of the different reproductive disorders included clinical diagnosis, gynecological examination (ultrasonography, vaginal cytology, vaginoscopy), laboratory investigations (hematological examination, hormonal assay, estimation of C-reactive protein and Fibrinogen, estimation of tumor markers); microbial examination and pathological investigation (histopathology). The distribution of these diseases within the different breeds and varying ages was studied. Irrespective of the dog breeds, the results revealed that the highest incidences of reproductive affections were estimated for pyometra (33.64 %), vaginal hyperplasia (24.29 %) and Transmissible venereal tumor TVT (18.69%). On the other hand, the least incidences were reported for ovarian, cervical and vaginal tumors as well as vaginal septum (0.93 % for each of them). In this aspect, pyometra was diagnosed in most of the investigated breeds (8 out of 14) whereas vaginal hyperplasia and TVT were found in 7 out of 14 and 4 out of 14 studied breeds, respectively. The highest incidences of pyometra, vaginal hyperplasia and TVT were noted in Golden Retriever (47.06 %), Boxer and Alabai (100 %) and German shepherd (36 %), respectively. Concerning the prevalence of the reproductive diseases within each age group, it is observed that vaginal hyperplasia constitutes the highest incidences (33.33 and 40 %) in bitches of 1 - 2 years old and 2 – 3 years old, respectively. It was decreased to 23.80 % in bitches of 3 - 5 years old while in larger ages no cases of this disease were reported. Similarly, incidence of TVT decreased from 30.30 % to 28 % and 9.52 % in the first, second and third age groups, respectively. In larger ages, only one case (10 %) was reported in bitches of 7 - 10 years old. On the contrary to vaginal hyperplasia and TVT, the incidence of pyometra increased with the advances of age. It increased from 12.12 % to 24.00 % and 28.57 % in bitches of the first, second and third age groups, respectively.

Throughout this study, some modern diagnostic tools were used for prediction and accurate diagnosis of some reproductive disorders. In cases of pyometra, fibrinogen and C-reactive proteins were assayed through the consecutive three weeks following treatment. Also, in cases of TVT and mammary tumors, tumor markers (CEA, CA15.3 and CA125) were assayed following surgical or medical interferences. Moreover, histopathological examination was carried out for all the reproductive disorders. The influence of type of treatment on the future fertility of the treated bitches illustrated that among all cases of pyometra, only 7 bitches were suitable for medical treatment (19.44 %). Four bitches (57.14 %) could be followed up after complete recovery. Fortunately 3 of them (75 %) had been bred and achieved pregnancy. Concerning the bitches suffering from vaginal hyperplasia, all cases subjected to surgical treatment. Among the cases that could be followed up 17 of them (85%) were successfully bred and got pregnant. Ten of those suffered from TVT were treated surgically followed by chemotherapeutic treatment whereas similar number of cases were subjected to chemotherapeutic treatment only. Three of five cases (60%) were successfully bred and got pregnant in the former treatment whereas only 25 % (1 from 4 cases) showed the same result in the medical treatment.

In conclusion, the current study revealed the most reliable diagnostic tools as well as the specific treatment of each reproductive disorder in the bitch.

**(Key words: Bitches, Infertility, Reproductive disorders, Tumor markers, Estrogen, Progesterone).**

*Dedication*

*My parents,*

*My Fiancé*

*My sister and brothers,*

*And*

*To all those who taught me.*



## *Acknowledgement*

*In the name of Allah (SWT) the almighty who taught man about matter that he does not know and prayers and peace be upon our holy prophet Muhammed (SAW) and his good followers till the Day of Judgment.*

*First of all I would like to extend my thanks to **prof. Dr. Sayed Taha Ismail**, professor of Theriogenology, Faculty of Veterinary Medicine, Cairo University, for his excellent supervision, encouragement, guidance and valuable instruction that he offered to me while performing this work. His intensive and creative comments have helped me step by step throughout this study and his great help in revising and finishing this thesis indeed, I am very honored and lucky to work under his supervision.*

*I express my deep gratitude, sincere and heartfelt thanks to my supervisor **prof. Dr. Mohamed Shehata El-Belefy**, professor of Theriogenology, Faculty of Veterinary Medicine, Cairo University, for his kind co-operation, constant support, untiring patience, stimulating suggestions and encouragement helped me in both, all the time of research work and the writing of this thesis. This thesis would never have to be completed without his help.*

*I fondly thank with deepest gratitude to **Dr. Mohamed Fathi Mohamed**, Lecturer of Theriogenology, Faculty of Veterinary Medicine, Cairo University, knowledge on the subject, regular observation, support and encouragement in every step of my thesis work and for his big effort during practical part of the thesis and writing, revising and finishing this thesis.*

*I am greatly indebted to all staff members of Theriogenology Department, Faculty of Veterinary medicine, Cairo University for their cooperation, encouragement and friendly atmosphere.*

*Last, but not at least, I would like to thank my family members for providing me with support and confidence and for their continuous prayers. Special thanks go to **my parents** whose moral support and encouragement has been the driving force behind my efforts and responsible for whatever I am today.*

*I highly appreciate **my Fiancé** support, patience and taking care of me in each step. I wish to thank him.*



## LIST of CONTENTS

<b>Contents</b>	<b>Page</b>
<b>List of Contents</b>	<b>I</b>
<b>List of Tables</b>	<b>II</b>
<b>List of Figures</b>	<b>IV</b>
<b>List of Abbreviations</b>	<b>VI</b>
<b>Introduction</b>	<b>1</b>
<b>Review of Literature</b>	<b>3</b>
<b>2.1. Anatomy of canine female genital tract.</b>	<b>3</b>
<b>2.2. Canine reproductive cycle.</b>	<b>5</b>
<b>2.3. Reproductive affections.</b>	<b>7</b>
<b>1. Ovarian affections.</b>	<b>7</b>
<b>2. Uterine affections.</b>	<b>10</b>
<b>3. Vaginal affections.</b>	<b>23</b>
<b>4. Mammary gland affections.</b>	<b>30</b>
<b>Materials and Methods</b>	<b>33</b>
<b>2.1. Animals.</b>	<b>33</b>
<b>2.2. Clinical examination.</b>	<b>33</b>
<b>2.3. Gynecological examination.</b>	<b>33</b>
<b>2.4. Laboratory investigations.</b>	<b>34</b>
<b>2.5. Microbiological examination.</b>	<b>35</b>
<b>2.6. Pathological examination.</b>	<b>36</b>
<b>2.7. Medical and surgical therapy.</b>	<b>36</b>
<b>2.8. Gynecological affections.</b>	<b>37</b>
<b>2.9. Statistical Analysis.</b>	<b>41</b>
<b>Results</b>	<b>42</b>
<b>1. Ovarian affections.</b>	<b>50</b>