

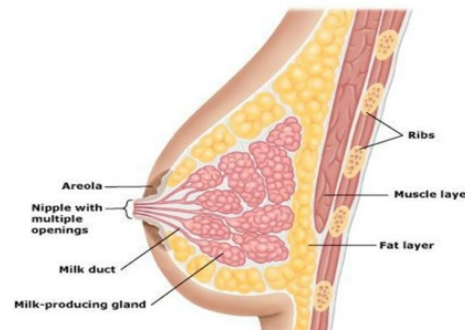
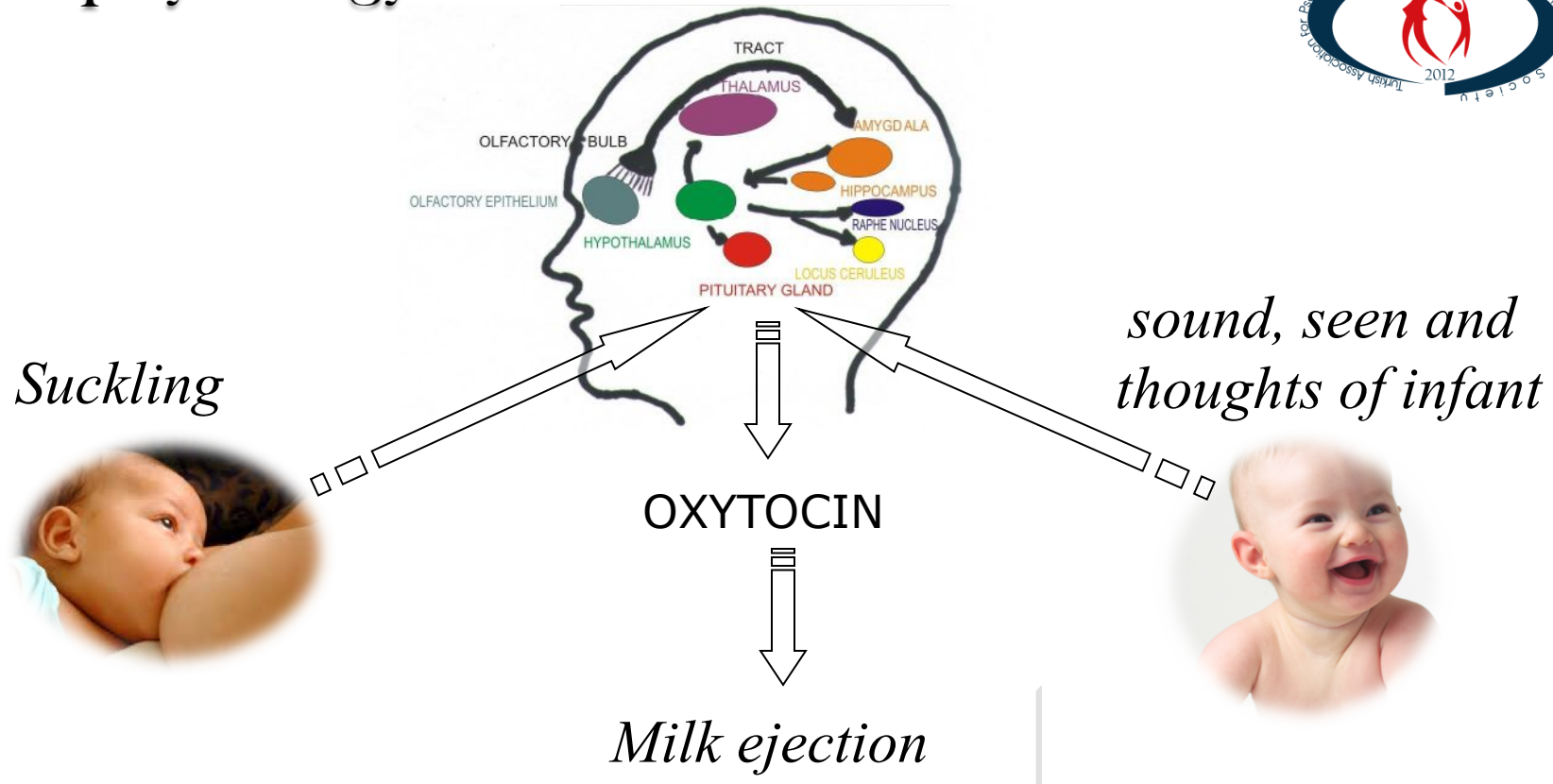
General outlines

1. Background
2. Lactation Mechanism and Breastfeeding
3. Structure and Connections of the Olfactory System
4. Objective and Hypothesis
5. Materials and Methods
6. Results
7. Conclusion

Background

- Some depressed mothers may experience problems in breastfeeding, such as insufficient amount of milk production and discontinuation.
- Despite available studies dealing with relationship between depression and breast-feeding difficulties, the effect of depression on lactation through alterations in mammary gland structure is largely unknown.
- The underlying peripheral mechanism is not fully investigated

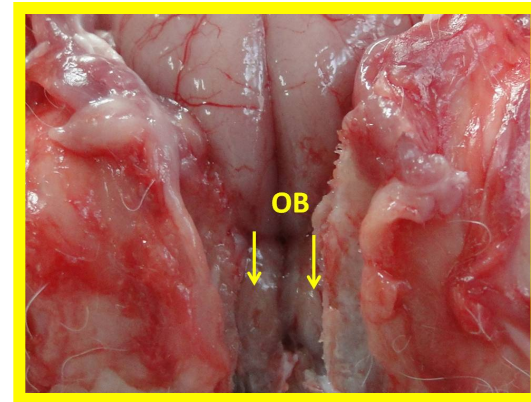
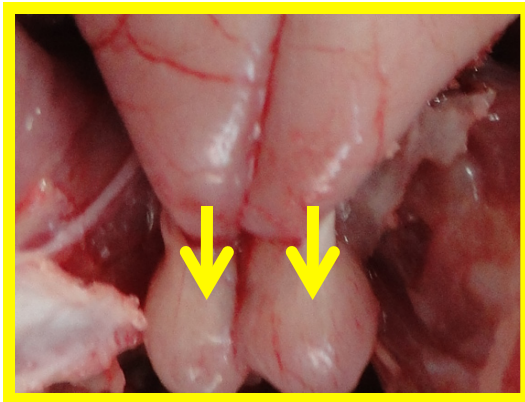
Lactation physiology



Depression Models

- Pharmacological
- Social stress
- Animal model

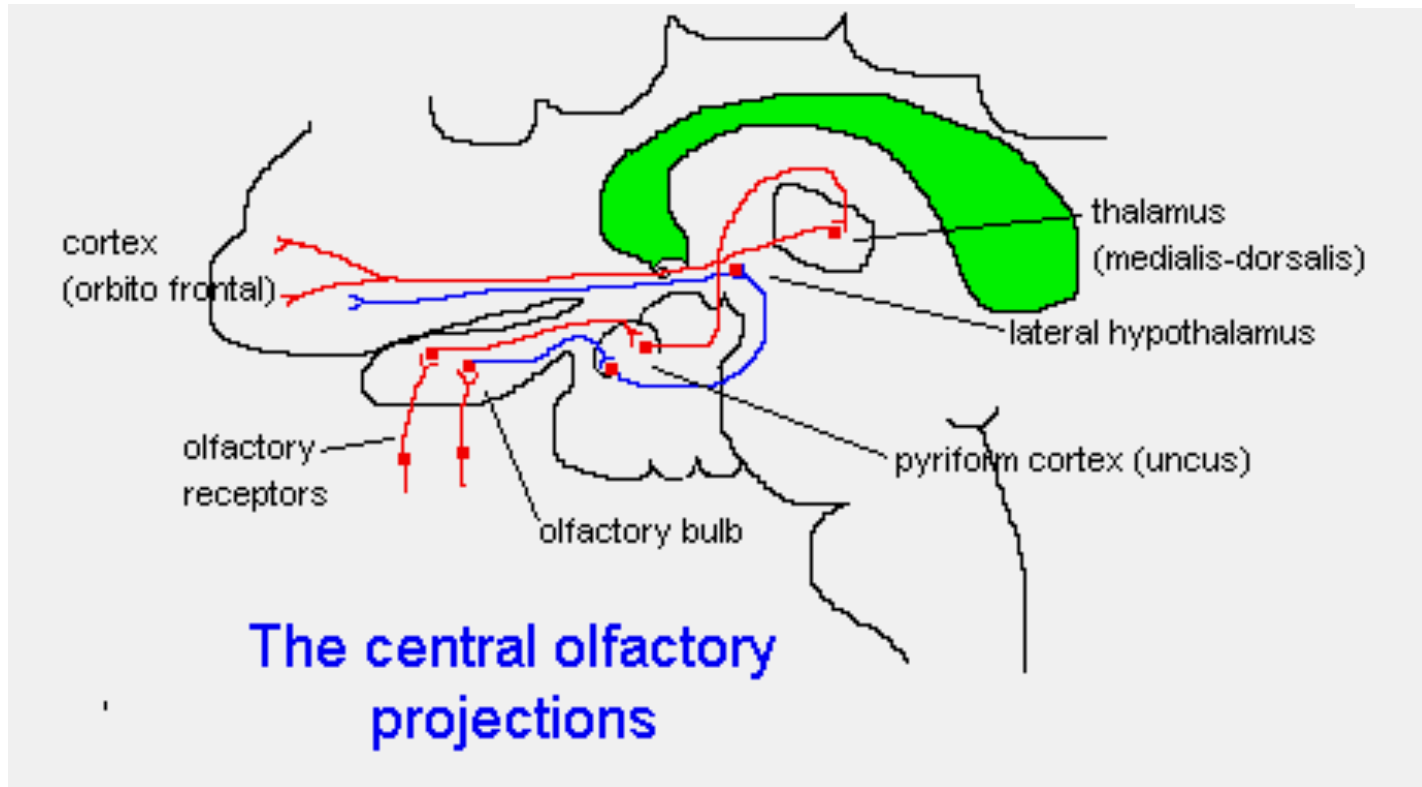
Olfactory Bulbectomy (OBX)



well validated preclinical model of depression

(Kelly et al., 1997; Song and Leonard, 2005)

OBX



- ✓Exhibits dysfunction in the cortical-hippocampal-amygdala circuit
- ✓Leads to anatomical, behavioural, neurochemical, neuroendocrine and immune changes reflecting those observed in major depressed patients

Hypothesis:

The effect of depression on lactation may occur through alterations in mammary gland.

Objective:

Determination whether depression affects mammary gland tissue.

Material and Methods:

Parent stocks	Number and Gender	Category of Groups
1	5 male + 10 female	Control
2	5 male + 10 female	Sham Operated
3	5 male + 10 female	OBX

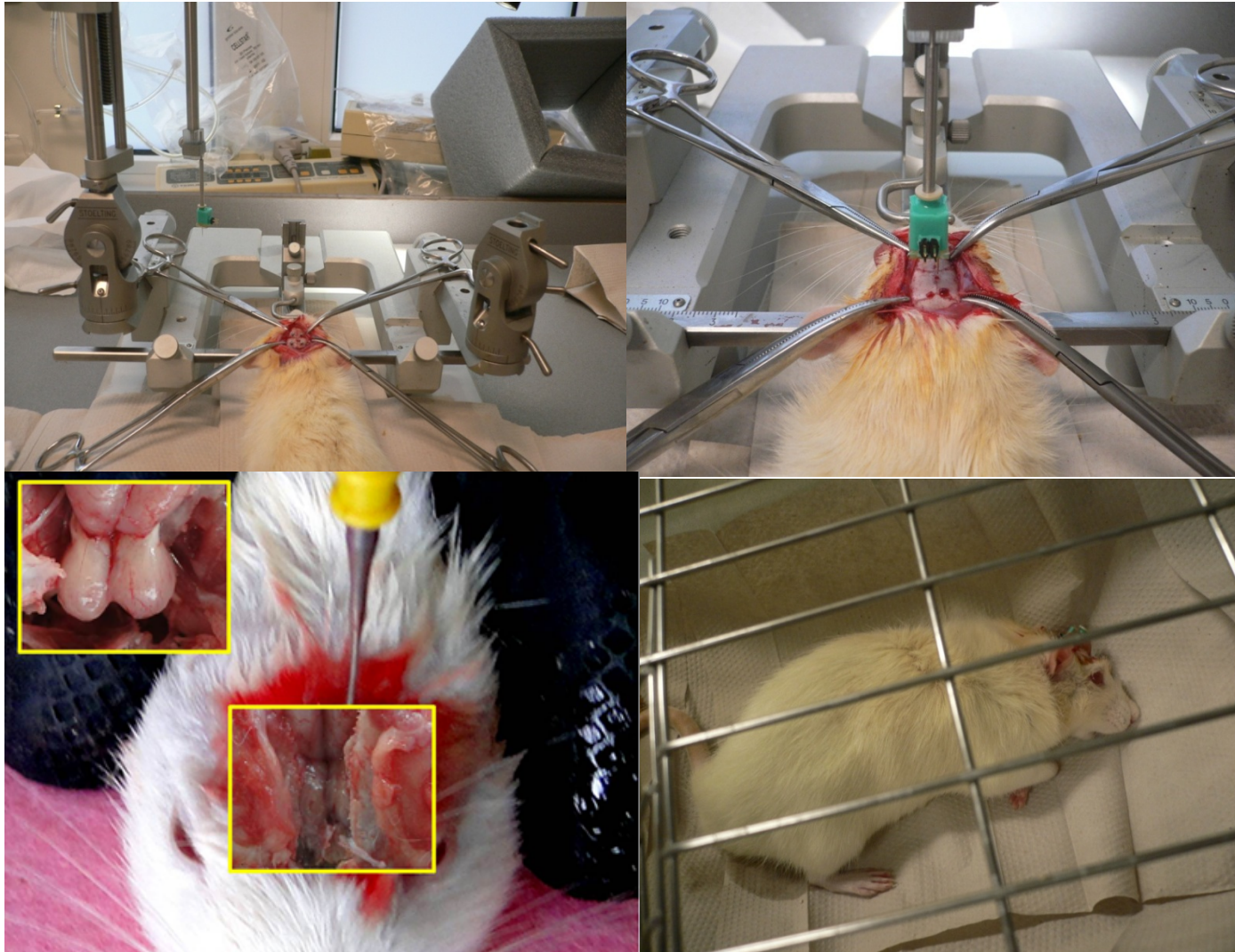
Breeding duration was 10 weeks

After breeding period, males were removed from cages

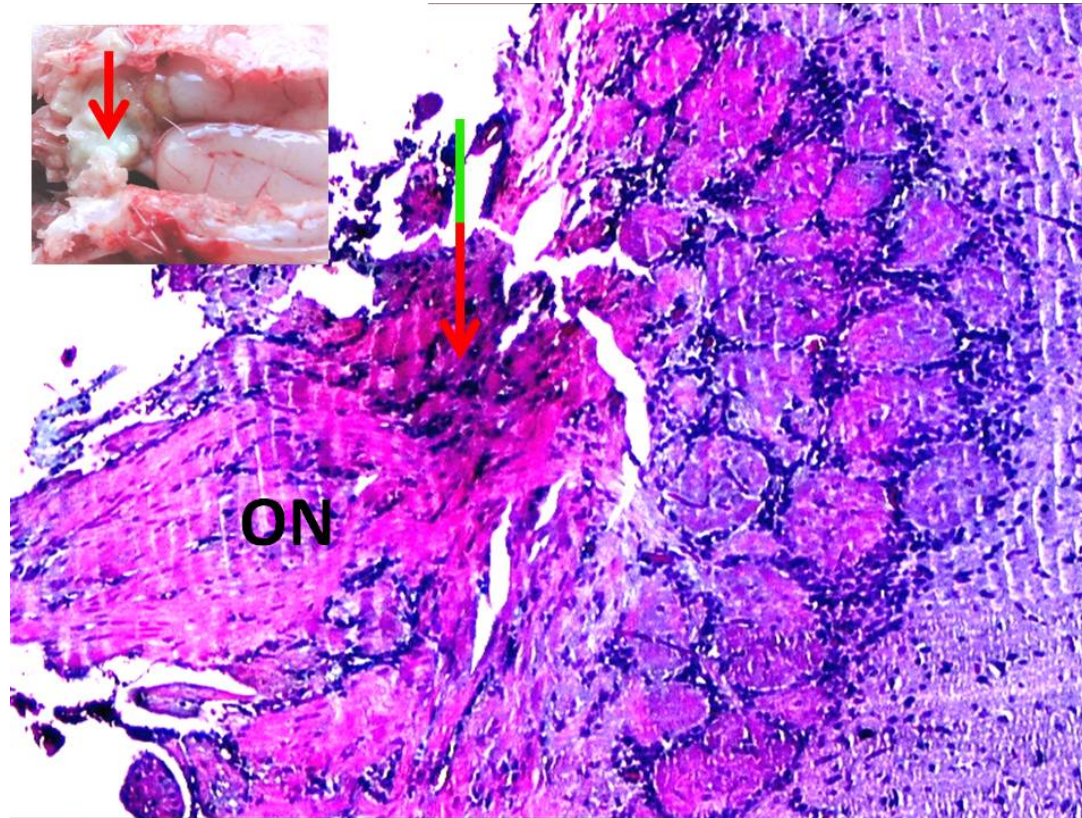
Rats were housed in individual cages with own offsprings

Decapitation after 4 weeks of lactation.

Stereotaxic Surgery

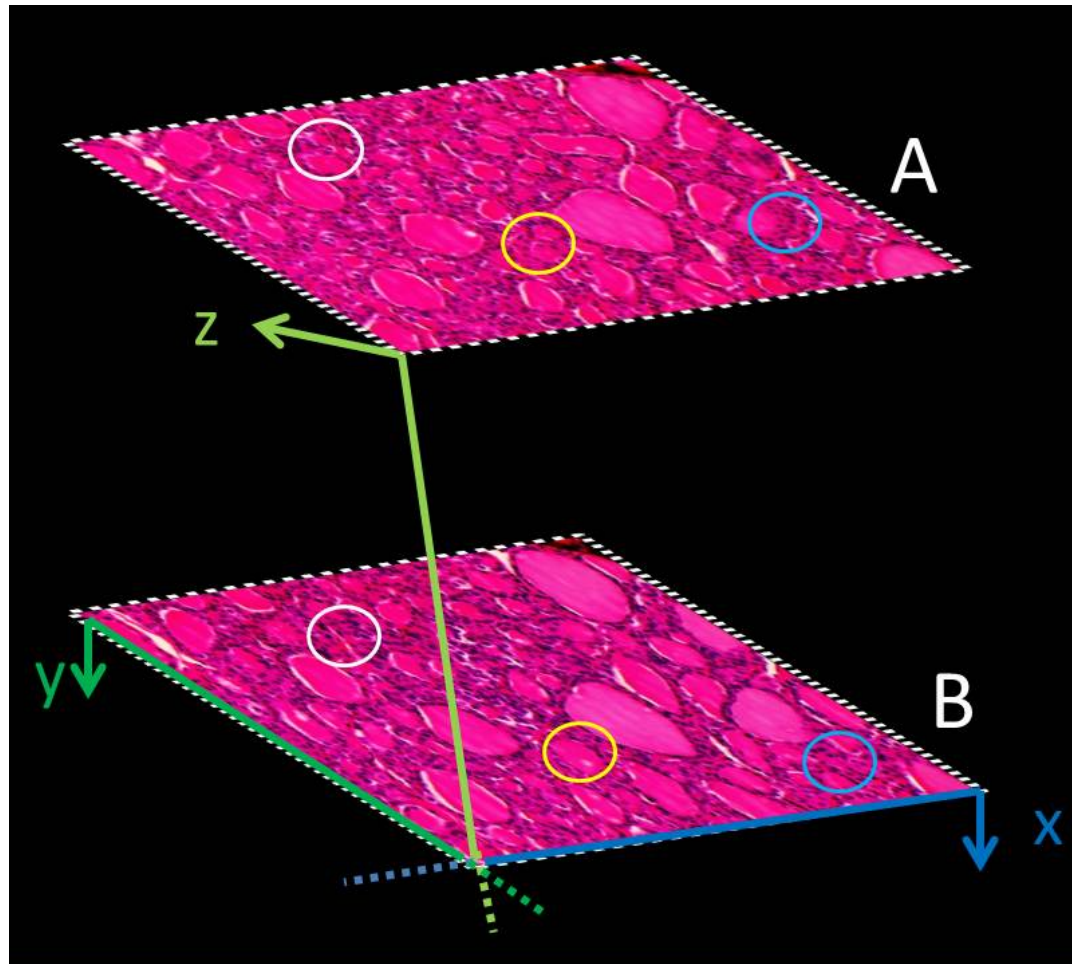


Results

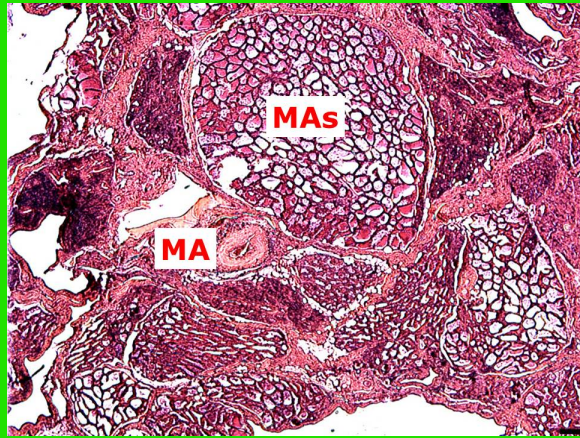


Histopathological appearance of Olfactory Bulb after OBX
(LM, H&E, 40x)

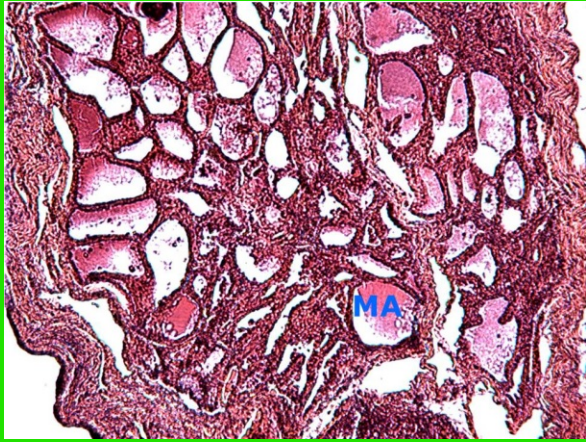
- ✓ OB atrophied and sclerosed
- ✓ Olfactory tract degeneration



Cells Number Estimation Method by Stereology

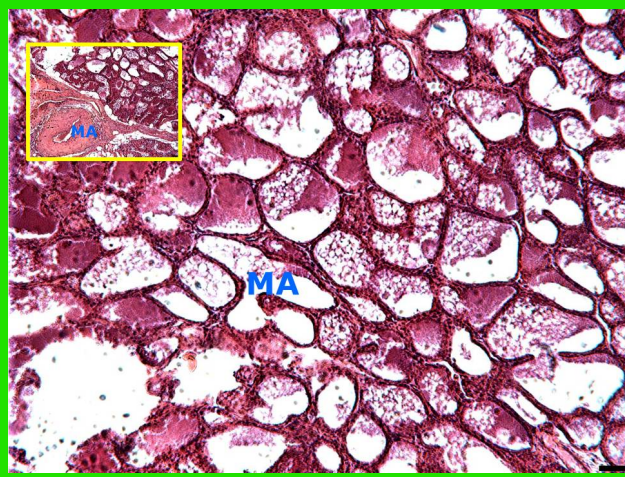


Mammary Gland Asini (MAs),
Mammarian Artery (MA)
(Control Group)

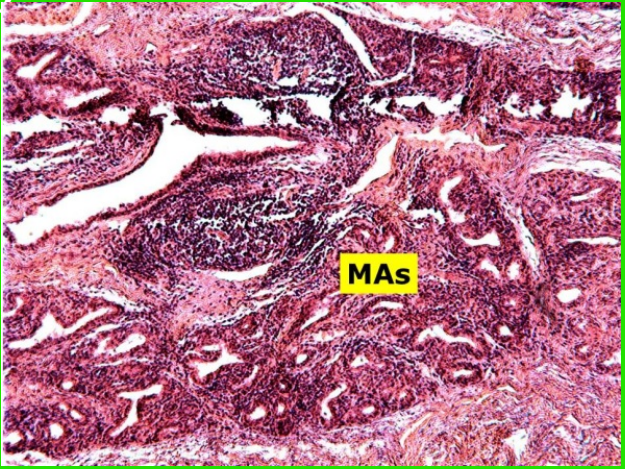


Mammary follicles with
nearly normal in size
(Sham Group)

(LM,H&E, x10)



Mammary gland follicles
(Control Group)



Mammary follicles with
decreased in size
(OBX Group)

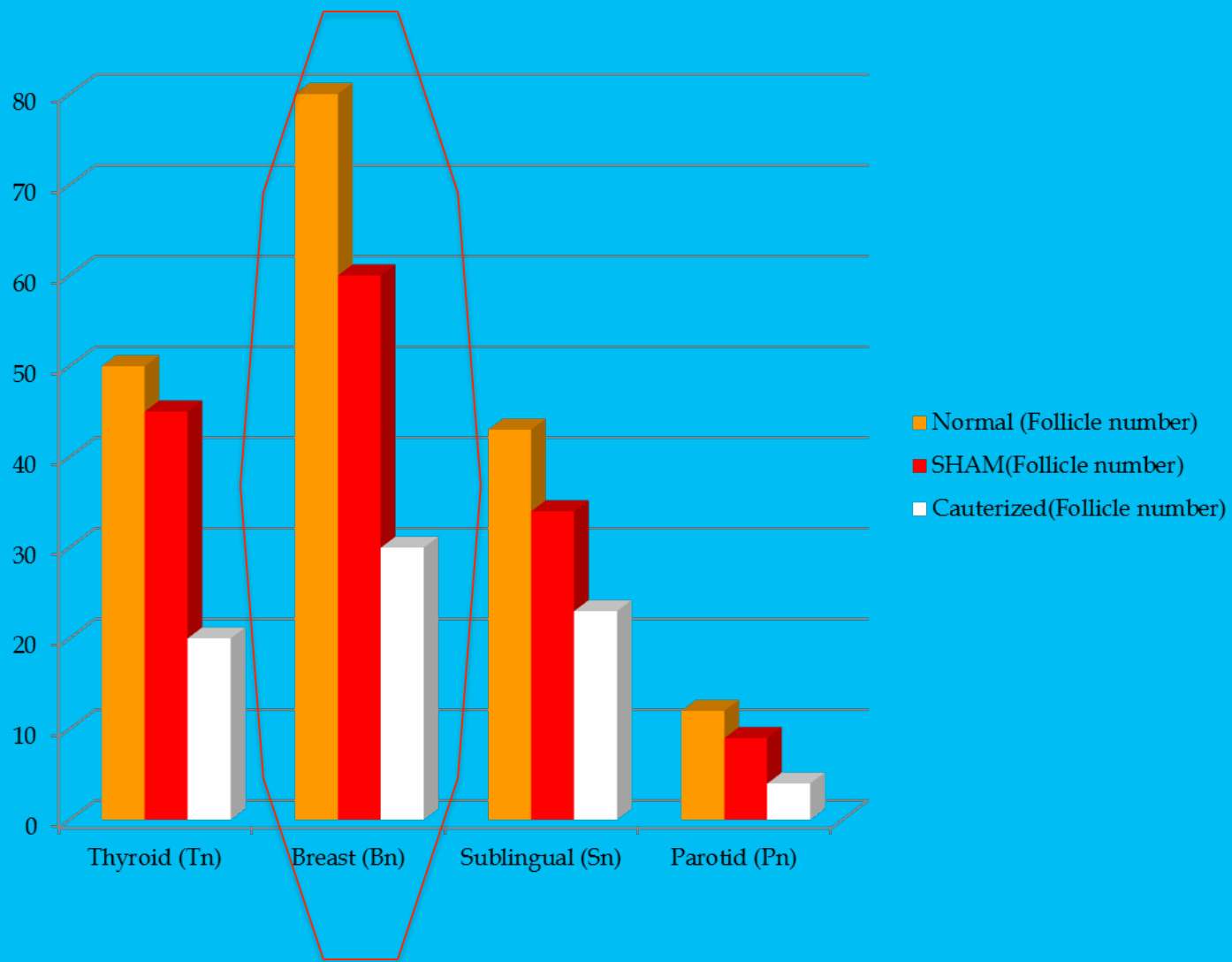
Results

Category of groups	Number of parturition	Mean of litter
Control	8	6 \pm 2
Sham	5	5 \pm 2
OBX	4	3 \pm 2

- ✓ Bulbectomized rats had higher litter mortality rate
- ✓ Breast mass decreased in OBX rats as compared to other groups

Results

Decreased number and size in tubuloalveolar compartments scattered obliterated lactiferous ducts were detected in mammary glands of bulbectomized rats.



Follicle Numbers (n/10mm³)

Conclusion

- ✓ At the depressive state impaired signaling between brain and mammary gland may lead to alteration of mammary gland structure and consequently lower lactation performance
- ✓ Depression may cause dysfunction of stimulus system among brain-endocrine-secretion-limbic and reproductive organ feedback loops.

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**Je Vous Remercie
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**Dikkatiniz İçin
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**Thank You
for Your Attention !**

