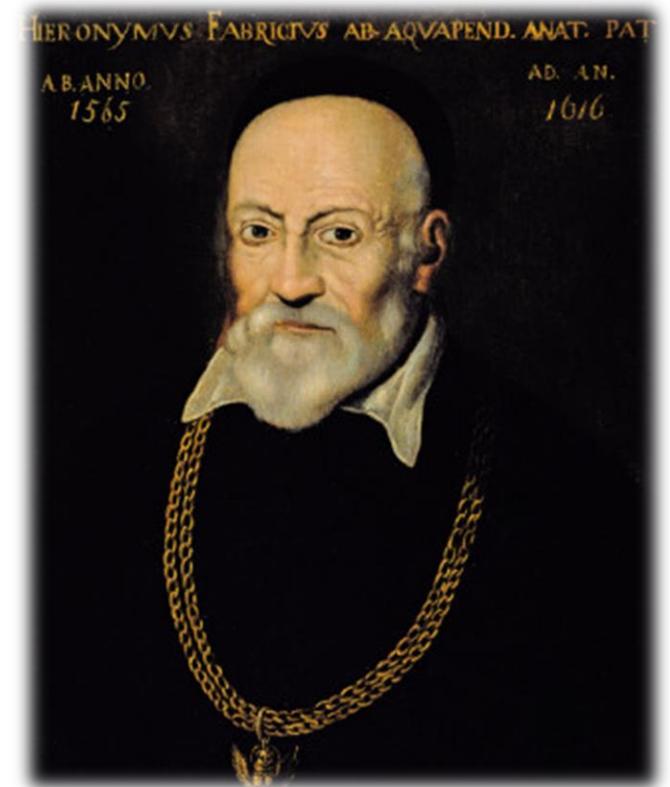


Bursa-Body Weight Ratio

Introduction

The cloacal bursa was given its name to pay tribute to Dr. Hieronymus Fabricius, an Italian anatomist who used to work in Padua in the late 16th, early 17th century.



Cont. ...

- › He was the first to notice this small organ on the top of the cloaca in birds, but he did not know its actual role.
- › The importance of the bursa of Fabricius (BF) as primary lymphoid organ has meanwhile been well described specifically in young birds it plays an important role in developing immunity.

Bursa: Body Weight Ratio (X1000)

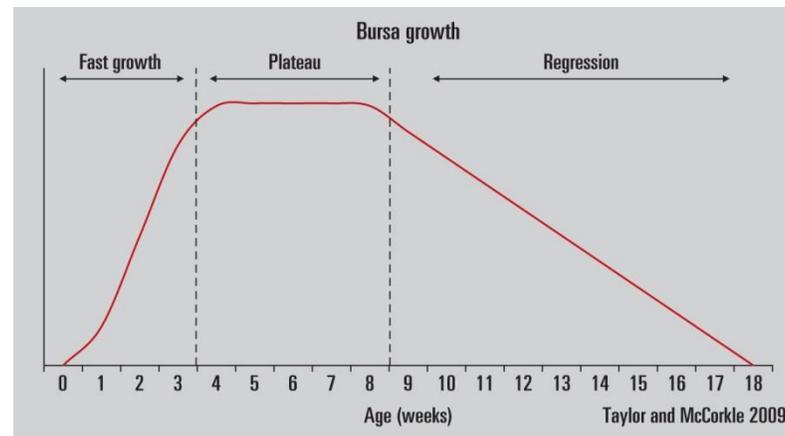
- › Bursa:Body weight ratio is a standardized way of determining the level of bursa atrophy, whether post vaccination and after a challenge with IBDV.
- › $B:BW \text{ ratio} = \text{bursa weight} \times 1000 / \text{body weight}$
- › A higher B:BW ratio is favorable (less atrophy)

Development Of BF

Basically, the BF is going through three consecutive development stages:

1. A growth phase during the first three weeks of age;
2. A "plateau" phase between the 4th and the 8th weeks of age;
3. A slow, but steady regression phase from the 9th week of age onwards, until nearly disappearing when at the sexual.

Development Of The BF



BB Ratio and Age

- › The BB ratio is increasing in the first weeks in meat-type breeds, due to a strong bursa development, and a relatively slow body development.
- › From the 6th week of age onwards, the BB ratio goes down, due to a stabilization of the BF development, while the body growth is strong.
- › High individual variability in bursa weight for a given age.

BB Ratio and Sex

- › Most of the time, the BB ratio in males is lower than in females.

BB Ratio and Breed

- › In laying-type birds, the BB ratio was constantly greater in White Leghorn than in Rhode Island Red female chickens.
- › For the same breed, the average BB ratio kept steady between 4 and 6 weeks of age when reared on litter, whereas it dropped quickly when reared in cages.

Infection Of The BF

- › Following colonization of the BF by an infectious bursal disease virus, changes will be observed in a sequential way.
 - **In the acute phase within 4 days PI (Post Infection)**
 - › The BF size is multiplied by 2 to 3 times
 - › Swelling of the plicae
 - › Sometimes with some gelatinous material inside.
 - **5th day PI (Post Infection)**
 - › The BF is usually already back to its initial size.
 - **8th – 10th day PI (Post Infection)**
 - › The BF gets atrophied by 3 to 6 times.

Recovery Of BF

The recovery phase can last up to 35 days PI (Post Infection).

- › The actual duration of the recovery process mainly depends upon:
 1. The virulence of the virus strain.
 2. On the quantity of virus invading the BF.
 3. On the age at colonization.

- › In other words, an attenuated strain of IBDV (e.g. a vaccine strain) will colonize the bursa as well. However, the recovery process will be much faster (approx. seven days).

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