Atrophic rhinitis (AR) is generally considered as an infectious disease with as major causative agents are B. bronchiseptica (Bb) and F. mitis (Fm). However, if the role of Bb has been demonstrated since a long time, we have emphasized that the role of Fm is less evident (4). Recently, de Jong et al. (4) have showed that only heat-labile toxins (LT) produced strains of Fm were able to cause turbinate atrophy in SPF pigs. In our knowledge, some data are available relative to the experimental reproduction of AR with Fm on SPF pigs (1, 2, 3, 10), but not on gobotrophic pigs. In this paper, we report results of experiments with Fm alone or associated with Bb on gobotrophic and conventional pigs.

MATERIAL AND METHODS
A-Animals: 24 germfree colonum-deprived piglets (6) and 32 conventional piglets naturally reared under 3 giltas purchased from one herd free from clinical AR. Before the trial, 3 nasal swabs were taken from the gilt and they receive antibiotic during the week before farrowing. The piglets were killed between 27 and 42 days post-inoculation.

B-Method:
1-a toxic producing strain of Fm Carter's type D (TPMl) (CDI 404361),
2-a dubious toxic producing strain of Fm Carter's type (17CPm) (CDI 404361), only tested on conventional piglets;
3-a AS pathogenic strain of Bb (T382) previously used (13).

C-Experimental groups:
- In conventional piglets: inoculation were performed at days 5, 6 and 7 by a gently instillation with a syringe,
- In gobotrophic piglets: only the TPMl was tested: group A10, 0.5ml/mostril of a saline suspension, of Fm at different concentrations (9, 10 to 9, 10 CFU/ml).
- After growth on a solid medium, Fm was harvested and then suspended in saline.
- Group B10, 0.5ml/mostril of a Bb broth culture, 34h at 37°C, counted approx. 10^7 CFU/ml.
- Group C10, 0.5ml/mostril of a cell-free broth filtrate.
- Heat-labile toxin concentration was estimated by a dilution test in mice (DS20).

- Group D10, 0.5ml/mostril of a Fm suspension (9, 10^11 CFU/ml) and 0.5ml/mostril of a Bb suspension (3, 10^7 CFU/ml).
- Group E10, 0.5ml/mostril of a Bb broth, approx. 10^12 CFU/ml and a Bb suspension (3, 10^7 CFU/ml).
- Group F10, 0.5ml/mostril of a cell-free broth filtrate instilled with 0.5ml/mostril of sterile saline.

2- On conventional piglets:
- Group G10, 0.5ml/mostril of a saline TPMl suspension (9, 10^7 CFU/ml).
- Group H10, 0.5ml/mostril of a saline Fm suspension (9, 10^7 CFU/ml).

RESULTS
- On gobotrophic piglets:
1- With a saline Fm suspension (9, 10^5 to 9, 10^7 CFU/ml) (group A), no macroscopic or microscopic lesions were noted. Fm was recovered in 10/11 piglets from the tonsils but only in 1 case (1/11) from the nasal cavities.
2- With a Bb broth culture (group B), important turbinate atrophy are seen. Histologically, we did not observe cartilaginous metaplasia in spite of the extensive macroscopic lesions. Fm was recovered from the nasal cavities and tonsils.

- With the cell-free broth filtrate (group C), the lesions were also very important but predominant in the rostral part of the nasal ventral turbinate (NVT), before the proximal turbinate.

Microbiological germfree status was confirmed.
4- With Fm and Bb suspension (group D), there were no macroscopic or microscopic lesions. Fm was only recovered from the tonsils and Bb was not detected.
5- With Fm broth culture and Fm suspension (group E), the lesions were important and more extensive in the rostral part of the NVT. Fm was recovered from the nasal cavities in 8/11 piglets.

CONCLUSIONS
1- Fm alone is able to cause severe turbinate atrophy on gobotrophic piglets when a broth medium was used as inoculum, even though experimental AR is easy with a Bb suspension (3).
2- The cell-free broth filtrate of the Fms instilled 3 consecutive days was also able to cause severe turbinate atrophy on gobotrophic piglets. This observation is different from those reported with Bb from which the cell-free extract needs to be instilled during several weeks to induce concha atrophy (8).
3- In conventional piglets, bacteria, mycolomas or viruses can help the colonization by Fm as previously suggested (10). Indeed, we think that nasal mucus may be important for the first step of colonization.
4- The classical examination at the level of the first proximal turbinate to score the gross lesions is often normal whereas rostral cross-sections of the nose showed very important turbinate atrophy. Consequently, two exam sections must be recommended for the field diagnosis.
5- Our results, in particular those with the cell-free broth filtrate should be in relation with the more prominent cases turn-over of the NVT during the two first weeks of life (6, 7).

Selected references:
1- de Jong et al. Proceed. IVF. Copenhagen, 1980, 211.
3- Martineau et al., Proceed. IVF. Copenhagen, 1980, 201.
6- Martineau-Jolicoe et al., Proceed. IVF. Mexico, 1985, 217.
8- Jakobs et al., Proceed. IVF. Amsterdam, 1978, 1.

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