Acta vet. scand. 1973, *14*, 344—346.

Brief Communication

THE PATHOGENICITY OF MYCOPLASMA FLOCCULARE

Friis (1972) found a strain of Mycoplasma flocculare (M. floc.) capable of inducing histologic changes in the nasal mucosa and lungs in 4 9-week-old secondary SPF piglets. Though a different clone, the strain used originated from the same pneumonic lung as the type strain of this species, Ms42 (*Friis*).

In the present work the above-mentioned strain of M. floc., which shows no difference from Ms42 in the growth (g.i.) and metabolic (m.i.) inhibition tests, was used for infection experiments on 3 secondary SPF (Exp. I) and 3 gnotobiotic (Exp. II) newborn piglets. The animals of Exp. I originated from an SPF herd free from respiratory disorders, and, as judged by successive negative cultivations from sacrificed animals through 3 years, also from mycoplasmas; moreover, on histologic examination the sacrificed animals showed no alterations in the lungs or nasal mucosa. The experimental piglets were inoculated when 36 hrs. old with a broth-culture aerosol of mycoplasmas (3rd pass after recovery from the nasal mucosa of a 9-week-old experimental pig, dilution of original tissue 10^{15}). They were nursed by their mother throughout the experimental period. The gnotobiotic animals*, produced by hysterotomy and deprived of colostrum, were housed in MP-isolators (*Friis* 1971) and inoculated when 8 days old with a broth-culture aerosol of mycoplasmas (7th pass, dilution of original tissue 10^{14}, cloned once on solid medium).

The results are surveyed in Table 1. There were no clinical signs of disease and no rises in temperature (recorded every second day). The only necropsy finding was in the right lung of F149, where a few small (2—4 mm) dark-red areas were found ventrally in the cardiac and apical lobes. The histologic changes found in the nasal mucosa of all the animals consisted of diffuse and focal infiltrations of the lamina propria with lympho- and histiocytic cells and a few neutrophils. In some places the inflammatory cells had compressed (Fig. 1a) or even disintegrated (Fig. 1b) the covering epithelium, while the glan-

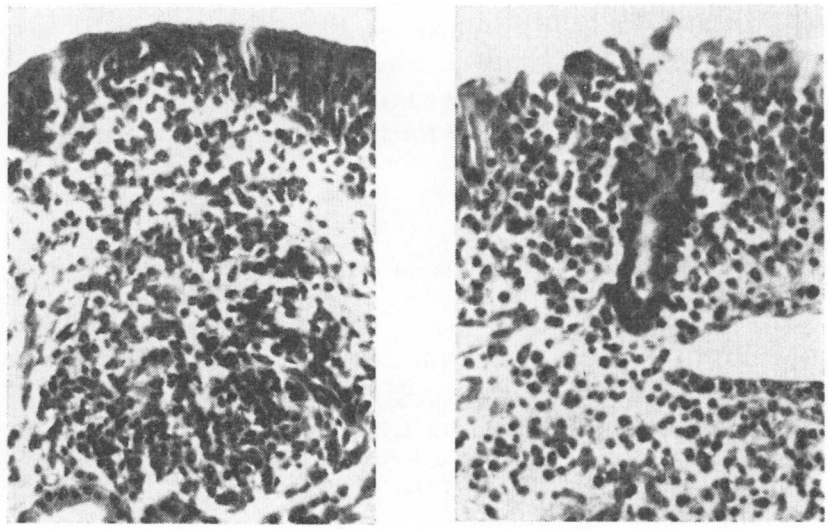
* Kindly supplied by Dr. M. Mandrup, The Danish Meat Research Institute, Roskilde, Denmark.

Table 1. Results of inoculation experiments with M. flocculare on newborn piglets.

Piglets	Necropsy	Lesions				Reisolation**					
	days p.i.	nasal cavity		lung		nasal cavity	lung				other sites
		g	h*	g	h	et	rc	la	ld	ra	
sec. SPF											
F151	24	0	+	0	0	—7	—4	—6	—4	nd	0
F150	40	0	+	0	0	—6	—5	—5	—4	nd	0
F149	59	0	+	+	+	—7	—6	nd	—5	—7	+***
gnotobiotics											
F158	15	0	+	0	0	—6	—6	—5	—6	nd	0
F160	22	0	+	0	+	—7	—6	—6	—7	nd	0
F162	33	0	+	0	+	—7	—4	—5	—6	nd	0

g = gross, h = histologic, et = ethmoturbinates, r = right, l = left, c = cardiac lobe, a = apical lobe, d = diaphragmatic lobe, nd = not done.

* upper and lower turbinates. ** expressed as log. of endpoint titer of mycoplasmas recovered from 10-fold dilutions of 10 % ground-tissue suspensions. *** frontal lobe of brain (—2), pleural cavity (—1), pericardial cavity (—2).



a b

Figure 1. F 149, nasal mucosa. Focal infiltrations of lympho-histiocytic cells, a: with compression, b: with disintegration of the epithelium. Approx. 270 ×.

dular and osteoblastic layers seemed unaffected. These lesions were most pronounced in the animals of Exp. I. In the lungs of F149 and 2 other animals, infiltrations of lympho- and histiocytic cells were found in the propria mucosae of a number of bronchi, in F149 accompanied by large peribronchial accumulations of similar cells.

The reisolated mycoplasmas were identified as M. floc. by g.i. Cultures from joints, liver, spleen, and the peritoneal cavity were consistently negative, while cultures from the brain and the pericardial and pleural cavities were positive in 1 animal (F149). During the experimental period M. floc. was recovered several times from the nostrils of the animals of Exp. I. Bacteriological cultures (blood plates, aerobically incubated) were negative from all tissues examined except the nasal cavity of F149, where a few non-haemolytic micrococci were found. The nasal mucosa of the animals and the right lung of F149 were examined virologically in pig kidney monolayers. In 3 passes of 1 week each no cytopathogenic effect was observed.

It will appear that inoculation of newborn piglets with M. floc. by a "natural" route resulted in a lasting infection with chronic histologic lesions of the upper and lower respiratory tract. Judgement as to the significance hereof in relation to porcine respiratory diseases must await further studies. It also appears that the respiratory tract as a whole is the natural habitat of M. floc., which seems to have little tendency to haematogenous spreading and a poor affinity for tissues outside the respiratory tract.

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(Received January 31, 1973).

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