Staphylococcus hyicus virulence in relation to exudative epidermitis in pigs

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Staphylococcus hyicus strains with different phage types, plasmid profiles, and antibiotic resistance patterns were isolated from piglets with exudative epidermitis. The strains could be divided into virulent strains, producing exudative epidermitis, and avirulent strains, producing no dermal changes when injected in experimental piglets. The results showed that both virulent and avirulent strains were present simultaneously on diseased piglets. This constitutes a diagnostic problem. Concentrated culture supernatants from nine virulent strains injected in the skin of healthy piglets produced a crusting reaction in all piglets. Acanthosis was observed in the histopathological examination of the crustaceous skin. Concentrated culture supernatants from nine avirulent strains produced no macroscopic or microscopic skin changes. Protein profiles from all virulent strains and seven out of nine avirulent strains showed a high degree of protein band homology. An approximately 30 kDa protein present in all concentrated culture supernatants capable of producing skin changes, could not be detected in samples that did not produce skin changes. No other protein showed a similar association. It is concluded that crusting reaction of piglet skin is a suitable indicator of virulence in S. hyicus in relation to exudative epidermitis, and that virulent strains produce a 30 kDa protein, absent in concentrated culture supernatants from avirulent strains. This 30 kDa protein might be an exfoliative toxin.

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