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ARACHNOMELIA IN ITALIAN BROWN CALVES

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Among the genetic defects that might affect Brown cattle, Arachnomelia (spider-legs) - a congenital abnormality of the skeletal system giving the animal a spidery look - has begun to worry the Italian Brown cattle breeders.

Four dead Italian Brown calves (A, B, and C were female, D was male; A, C, and D were born dead, B was put down at the 3rd day of life) were submitted because of macroscopic skeletal malformations of the skull and the hind legs. All animals presented facial deformities, mainly characterized by a short lower jaw (brachygnathia inferior) and concave rounding of the dorsal profile of the maxilla. The tip of the latter was tapered and slightly turned upwards. In calf B the maxilla was also shifted laterally. The cranium of calf A presented multiple fractures with evident sinking of the skullcap. All legs appeared much longer and thinner than normal (dolichostenomelia). Moreover severe angular deformities were evident in the distal part of the hind legs. In fact, fetlocks appeared to be in great hyperextension with the extremity of the toe forward and parallel to the trunk of the body. In calf A, the fetlock joints were stiff. Leg muscle resulted as clearly atrophic. Cardiac malformations were evident in calf C. They were characterized by complete transposition of the arterial trunks and bilateral concentric ventricular hypertrophy.

All calves traced back to the same sire (Tommy-ET).

The hypothesis of overlapping with the Marfan Syndrome in human medicine, (Arachnodactylia, defect in the metabolism of the connective tissue) was put forward in the past. However we think that the clinical identification between the bovine Arachnomelia and the human Marfan Syndrome is inopportune. Contrary to the almost undisturbed vitality of human patients, bovine Arachnomelia has a rapidly lethal course. Moreover it should be kept in mind that a true bovine Marfan Syndrome more closely resembling human Marfan Syndrome has been described in cattle.

Regarding the aetiology, although it has not been possible to find candidate genes until now, the condition is attributed to a simple autosomal recessive inheritability. In addition to these reports, many Italian Brown cattle breeders have reported the occurrence of other cases of Arachnomelia; all the indicated calves were offspring of Tommy-ET or Amaranto. As both these two bulls have been widely used for artificial insemination in Italy, we expect many cases of Arachnomelia in the future.

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