Case report
This report deals with a two-day-old female Italian Holstein calf submitted because of incapacity to stand up due to serious systemic arthrogryposis.
It constitutes the first case of CVM described in an Italian Holstein calf.

Main clinical findings
Reduced body weight: 19.4 kg.
Frog-like decubitus: the calf lay down in a flat position with extended limbs.
Systemic arthrogryposis: both metacarpho-phalangeal and metatarso-phalangeal joints were symmetrically contracted, whereas the carpal region was bilaterally extended.
Abnormal vertebral column: the cervical part was shorter than normal; the thoracic spinous processes were prominent, whereas the lumbo-sacral tract resulted concave; the tail was bent and measured 15 cm; the thoraco-lumbar part was clearly deviated (scoliosis).
Incapacity to stand up: despite repeated attempts to stand up, the calf was unable to.
If supported by assistants, its feet rested on the dorsolateral face of the pastern on the ground; the head hung down between the forelimbs.

Minor clinical findings
Light dyspnea with abnormal sounds upon auscultation: increased and rough bronchovesicular sounds, tracheal/tubal breathing in a small area.
Slight tachycardia: without other clinically detectable cardiac anomalies.

Main radiologic findings
Multiple anomalies of the vertebral column: abnormal number of vertebrae (7 cervical, 12 thoracic, 7 lumbar, 5 sacral, 11 caudal); fusion of vertebrae C6 and C7; presence of hemivertebrae in the thoracic (T1, T2, T7, T8) and lumbar (L2) regions; scoliosis.

Main necropsy findings
S-shaped deviation of the vertebral column at the level of the thoracic and lumbar tracts.
Complex malformation of the heart: atrial and interventricular septal defects, patent ductus arteriosus.

Genealogic analysis
Both parents had a familial relationship with the sire Carlin-M-Ivanhoe Bell, considered one of the biggest spreaders of CVM.
Sire of the calf was Macassar CV, already tested for CVM and identified as a carrier (“CV”).

Genetic diagnostic confirmation
Direct DNA-based analysis (DNA-PCR): calf resulted as homozygous for CVM-mutation, whereas the dam a heterozygous carrier.