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Grisel's syndrome linked to mycoplasma pneumoniae infection

Grisel's syndrome is a no traumatic atlanto axial subluxation often linked to inflammatory conditions of the head and neck region. The subluxation involves the connection between the first and the second cervical vertebrae and is recognized to be caused by several events including infections located in the ear, nose, and throat regions and/or by common complications of surgical procedures. The syndrome affects with major frequency the childhood and rarely the adult age.

Fig. 1. CT Scan showing rotary articular subluxation of the C1-C2 vertebral Tract.

The affected subjects present with flexed or rotated neck usually painful with neck movements as a consequence of a previous upper respiratory tract infections or a recent head-neck surgery. Differential diagnosis must be posed with the other causes of torticollis. Some clinical signs are recognized useful in distinguishing common torticollis related to Grisel's syndrome (GS) from those linked to other causes such as Chiari malformations, trochlear nerve paralysis, cervical, vertebral, spinal cord fractures and tumors of the posterior fossa. Clinical signs suggested to distinguish GS related torticollis from other causes are: the deviation of the second cervical vertebra spinous process in the same direction of the head rotation; contraction of the ipsilateral sternocleidomastoid muscle as an antalgic reflex manifestation; and, difficulty to turn the head in the opposite direction of the lesion. Radiologic investigations are relevant diagnostic assessment in particular the CT Scan which documents anomalies in the alignment of metamers and the MRI which may provide to confirm the anomalous articular vertebral relationship and the abnormal definition of ligament.

The disorder may be secondary to different conditions. Individuals with congenital malformation syndrome such as Down syndrome and Marfan syndrome may be prone to this condition in consequence of the ligamentous laxity related to these disorders. Several infectious events have been linked to the onset of GS and widely described in the literature. Among the causative factors of GS the following has been reported: Group A streptococcus (GAS), mycobacterium tuberculosis, bacteroides ureolyticus,

pseudomonas aeruginosa, staphylococcus aureus, methicillin-resistant s. epidermidis, Epstein-Bar virus and Kawasaki disease.

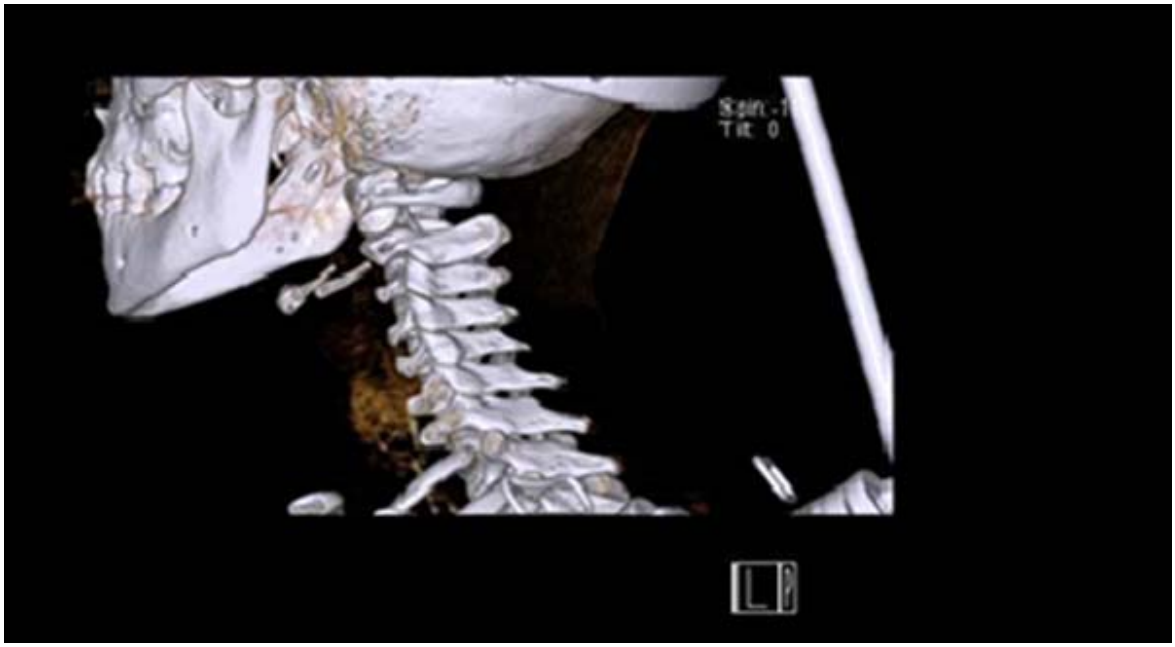

Fig. 2. Cervical and brain MRI showing rotary articular subluxation of the C1-C2 tract and signs of inflammation of the adjacent neck tissues.

Recently, GS has been also related to mycoplasma pneumoniae infection in a 8-year-old girl. Preceded by fever, cough, and pharyngodynia the girl manifested severe neck pain with a flexed inclination of the neck with neck movements. Laboratory analyses displayed an increased inflammatory index including C-reactive protein (PCR) 27 mg/dl, Norwalk virus (NV) 0-5 mg/dl, erythrocyte sedimentation rate (ESR) 30 mm/h, interleukin-(IL) 32, NV <15 mm/h, and mycoplasma antibodies (IgG 25, IgM 78, NV IgG and IgM <20 u/ml. The cervical MRI and CT scan showed a rotary articular subluxation of the C1-C2 vertebral tract. In humans, seven species of mycoplasma have been reported to have a pathogenetic action including among these the Mycoplasma Pneumoniae (MP). This pathogen is known to mainly affect the respiratory district in the pediatric age sometime causing severe respiratory complications. Less frequently the infection may have extrapulmonary effects involving different organic structures. How the MP as the other infectious agents may be cause of GS is a matter of debate. It has been hypothesized that the MP may act directly in the targeted organ or to act indirectly throughout autoimmune mechanism or to the formation of immune complex. Treatment of GS depends on the severity of the lesions and by the etiological events. Causal infectious agents must be treated with targeted antibiotic treatment. Fielding classification distinguishes four grades of GS impairment according to the direction of dislocation and the severity. In type 1 and type 2 GS conservative treatment is advised with immobilization of the neck and use of muscle relaxants. In more severe cases fixation and surgical intervention is essential to avoid severe complications.

Piero Pavone [1], ***Vito Pavone*** [2], ***Raffaele Falsaperla*** [3]
[1]*Department of Clinical and Experimental Medicine, University of Catania, Policlinico G.Rodolico, Via Santa Sofia 78, 95123, Catania, Italy*
[2]*Department of General Surgery and Medical Surgical Specialties, Section of Orthopedics and Traumatology, A.O.U. Policlinico-Vittorio Emanuele, University of Catania*
[3]*Unit of Neonatology, University Hospital "Policlinico – Vittorio Emanuele", Via Carlo Azeglio Ciampi, 95121 Catania, Italy*

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