Obeid-coronal malalignment classification

Coronal malalignment is a frequent condition, usually associated with sagittal malalignment, but it is often misunderstood. It's classification should help the spine surgeon to better understand the full spinal alignment of ASD patients. In concave CM, the correction should be obtained at the apex of the main curve. In convex CM, the correction should be obtained at the lumbosacral junction [1)]

Types	Subtypes	
Main coronal curve types	First modifier: the apex of the curve	Second modifier: flexibility of curve
Type 1 Concave	Type 1A between T12 and L4	Type 1A1 flexible
		Type 1A2 rigid
	Type 1B above T11-12	
Type 2 Convex	Type 2A between T12 and L4	Type 2A1 flexible
		Type 2A2 rigid
	Type 2B Lumbosacral junction: below L4-5	

Coronal balance is a major factor impacting the outcomes in adult spinal deformity surgery (ASD). The Obeid-coronal malalignment classification (O-CM) has been proposed to improve the coronal alignment in adult spinal deformity surgery. The aim of the study of Baroncini et al. was to investigate whether a postoperative coronal malalignment (CM) < 20 mm and adherence to the O-CM classification could improve surgical outcomes and decrease the rate of mechanical failure in a cohort of ASD patients.

In this multicenter retrospective analysis of prospectively collected data on all ASD patients who underwent surgical management and had a preoperative CM > 20 mm and a 2-year follow-up. Patients were divided into two groups according to whether or not surgery had been performed in adherence to the guidelines of the O-CM classification and according to whether or not the residual CM was < 20 mm. The outcomes of interest were radiographic data, rate of mechanical complications, and Patient-Reported Outcome Measures.

At 2 years, adherence to the O-CM classification led to a lower rate of mechanical complications (40 vs. 60%). A coronal correction of the CM < 20 mm allowed for a significant improvement in SRS-22 and SF-36 scores and was associated with 3.5 times greater odds of achieving the minimal clinically important difference for the SRS-22.

Adherence to the O-CM classification could reduce the risk of mechanical complications 2 years after ASD surgery. Patients with a residual CM < 20 mm showed better functional outcomes and 3.5 times greater odds of achieving the MCID for the SRS-22 score [2)].

1)

Obeid I, Berjano P, Lamartina C, Chopin D, Boissière L, Bourghli A. Classification of coronal imbalance

in adult scoliosis and spine deformity: a treatment-oriented guideline. Eur Spine J. 2019 Jan;28(1):94-113. doi: 10.1007/s00586-018-5826-3. Epub 2018 Nov 20. PMID: 30460601.
2)

Baroncini A, Frechon P, Bourghli A, Smith JS, Larrieu D, Pellisé F, Pizones J, Kleinstueck F, Alanay A, Kieser D, Cawley DT, Boissiere L, Obeid I; European Spine Study Group (ESSG). Adherence to the Obeid coronal malalignment classification and a residual malalignment below 20 mm can improve surgical outcomes in adult spine deformity surgery. Eur Spine J. 2023 Jul 2. doi: 10.1007/s00586-023-07831-0. Epub ahead of print. PMID: 37393421.