

## CLOVES syndrome

CLOVES syndrome is a recently described overgrowth syndromes with complex vascular anomalies. CLOVES stands for Congenital Lipomatous (fatty) Overgrowth, Vascular malformations, Epidermal nevi and Scoliosis/Skeletal/Spinal anomalies. The syndrome was described independently by Saap et al. and Alomari [1,2]. The syndrome shows no inheritance among families of affected patients.

CLOVES syndrome is rare and very variable; ranging from mild to severe. The common features in most patients allow for proper diagnosis and distinction from other syndromes. The most consistent features of the syndrome are:

1. **Fatty Truncal Mass:** Typically, a soft fatty mass of variable size is noted at birth. The mass can be seen in one or both sides of the back and abdominal wall with extending into gluteal or groin regions. The skin over the mass is covered with a red-pinkish birthmark (port-wine stain or capillary malformation). The fatty mass may extend into the chest, abdomen or into the spinal canal (around the spinal cord).
2. **Vascular Anomalies:** In addition to the skin birthmark, patients with CLOVES syndrome have abnormal lymphatic and venous channels. In addition, a group of patients suffer from a more aggressive vascular anomaly (Arteriovenous malformation) around the area of the spinal cord.
3. **Abnormal extremities (arms and legs) and scoliosis (curving of the spine)** are common. Patient may have large wide hands or feet, large fingers or toes, wide space between digits and uneven size of extremities.
4. **Skin abnormalities** include birthmarks, prominent veins, lymphatic vesicles, moles and epidermal nevus (light brownish slightly raised skin in the upper chest, neck or face).
5. **Other abnormalities** include small or absent kidney, abnormal patella (knee cap), knee and hip joints.

Most patients with CLOVES syndrome do not have all these signs, but rather a combination of abnormalities; though some can be subtle or deeply seated and requires dedicated physical exam and proper imaging studies.

The diagnosis can be established right after birth, though prenatal diagnosis with modern imaging tools maybe feasible [3].

The management of CLOVES syndrome can be very challenging and requires an interdisciplinary team of physicians with experience in overgrowth and vascular anomalies.

### References:

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2. Alomari AI. 2009. Characterization of a distinct syndrome that associates complex truncal overgrowth, vascular, and acral anomalies: A descriptive study of 18 cases of LOVES syndrome. Clin Dysmorphol;18:1-7.

3. Fernandez-Pineda I, Fajardo M, Chaudry G, Alomari AI. Perinatal clinical and imaging features of CLOVES syndrome. Pediatr Radiol.