In 1938, Saul Jarcho and Paul Levin described a syndrome that grouped severe anomalies of the spine and anomalies of the ribs resulting in a shorter thorax\(^1\). Children with severe forms had frequent pulmonary complications (generated by the thoracic restriction) and had a high mortality in the first years of life. What clinicians present in Jarcho-Levin syndrome encompasses a range of diagnoses from spondylocostal dysplasia, spondylothoracic dysplasia to bizarre vertebral anomalies and multiple hemivertebrae\(^2,3\). The disease is inheritable with both autosomal recessive pattern and autosomal dominant pattern. Due to the rarity of this condition very few cases are described prenatally, and from our knowledge no prenatal diagnosis has been reported in our country.

A patient of 23 years old with no prior obstetrical history presented in our department at 20 weeks for the sonographic anomaly screening. We noticed an abnormal shape of the spine, with abnormal vertebrae and an abnormal position of the spinal cord in the medullar canal. We did not notice any ribs anomaly and the cardio-thoracic ratio was normal. No additional anomaly except a single umbilical artery was noticed. Our diagnosis at this moment was: hemivertebrae; suspicion of spina bifida occulta. We recommended karyotyping, but the patient refused the procedure for personal reasons. The patient came back at 30 weeks and the ultrasound revealed the same aspect of the spine we noticed at 20 weeks. Though no obvious abnormally shaped ribs were seen a shorter and slightly narrower thorax was noticed. After a careful review of existing literature we decided it was a form of Jarcho-Levin syndrome. Family was informed of the possibility that the child might have a rare disease with potential inherited component; hence it was important to know if any similar cases were ever recorded in the family history - an attentive anamnesis was conducted but none came up. Our recommendations were delivery in a tertiary center, MRI and genetic counseling postnatal.

The baby was extracted by C-section at 39 weeks for an obstetrical indication unrelated to the baby’s condition. It was small for gestational age (2460 g), a condition frequently associated with single umbilical artery. The postnatal X-ray confirmed our suspicion that it was a form of spondylocostal dysplasia. In spite of the thoracic restriction, baby adapted well and was discharged after 6 days. Patient was referred to a radiology center where at the age of 13 months both CT and MRI were performed. They showed sever disorder of the vertebrae and ribs and abnormal position of the spinal cord in the medullar canal. The final diagnosis was spondylocostal dysplasia (Jarcho-Levin syndrome).

**Discussion**

Jarcho-Levin syndrome includes a large spectrum of spondylothoracic and spondylocostal dysplasias. Though the true frequency is no really known, about 400 cases have been reported in the literature\(^4\). The groups’ characteristics include anomalies of the vertebrae and ribs - the anomalies of the vertebrae frequently include hemivertebrae and fusion of the vertebrae generating scoliosis and/or kyphosis aspect that we met in our case as well. The spine and ribs anomaly generate a thorax with limited expansion and have frequent respiratory problems\(^5,6,7\). With postnatal growth, the need for a larger respiratory volume leads to a protrusion of the diaphragm towards the abdominal cavity and consequently an increased abdominal pressure. As a result of this, patients frequently develop inguinal hernia - our patient also deve-
loped inguinal hernia that was operated on at nine months postnatal. To this moment four genes involved in spondylocostal dysplasias were discovered: DLL3, MESP2, LFNG and HES7 - they explain 25% of the diagnosed cases\(^{(8,9)}\). The mechanism described is the alteration of the Notch signaling pathway which takes part in the somite segmentation\(^{(10)}\). The result is malformation and fusion of the vertebrae and ribs as described by Jarcho and Levin. Prenatal diagnosis helps in counseling the parents and referring the case to tertiary centers for delivery. A special mention is deserved for the use of 3D ultrasound both for the diagnosis (as it offers a multi-angle approach of the pathology) and for the patient who finds the images more suggestive.

**ACKNOWLEDGMENTS:** This paper was published under the frame of European Social Found, Human Resources Development Operational Programme 2007-2013, project no. POSDRU/159/1.5/136893. The study was approved by Craiova University of Medicine and Pharmacy Ethics Comitee.

**References**