Pregravid management of women suffering from spine degenerative disease

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Citation

Abstract
Pregravid management is an important multidisciplinary approach to solve the symptomatic spinal degenerative disease; and in terms of the vertebrology aspect, it is a treatment approach with modern conservative and selectively with minimally invasive surgical technologies. The goal of this paper is to examine minimally invasive decompressive and stabilizing surgeries can be an option of pregravid management of women with severe intractable symptomatic spine degenerative diseases. Twenty three non-pregnant women who were registered as having severe degenerative spine diseases and planning pregnancy were observed by us. For all patients the system of pregravid management included a course of complex conservative therapy, which considerably reduced the intensity of symptoms of 19 patients (Group I). Four patients were operated on using minimally invasive surgical method (Group II). Seven patients gave birth. Delivery involving surgery was exclusively done by obstetric indications, except the orthopedic ones. The basic method of pregravid management of women suffering from spine degenerative disease is conservative treatment. However, if ineffective it is necessary to treat with minimally invasive spinal surgical technique.

INTRODUCTION
Pregravid management is an important multidisciplinary approach to solve the problem, and in terms of the vertebrology aspect it is a combination approach with modern conservative and or minimally invasive surgical technique.

The main object of pregravid management is achieving disease remission before pregnancy using modern conservative therapy and minimally invasive surgical techniques.

From an orthopedic point of view, the lumbar spine is affected by several damaging factors during pregnancy resulting in hyperlordosis formation.

- hormonal changes,
- weight gain,
- shifting position of the fetus and gravity center,
- causing spinal posture changes,
- stress on the spine.

In the most cases, the influence of these factors during pregnancy causing the spine pathology to progress due to static and dynamic loads and deformation.

The goal of this investigation was to examine minimally invasive decompressive and stabilizing surgeries as an element of pregravid management of women with spine degenerative diseases.

To our knowledge, this is the first study of a population where minimally invasive decompressive and stabilizing surgeries have been performed with a focus on pregravid management of spine degenerative disease.

MATERIALS AND METHODS
Twenty three young women, who had been registered as having severe changes in vertebral motional segments of lumbar spine and planning pregnancy were included in the study. Fourteen of them had radiculalgia (radiculopathy) syndrome and 9 women had lumbalgia syndrome (significant low back pain). CT and MRI scans demonstrated numerous levels of protrusions and extrusions of three lowest lumbar discs. Degenerative spinal changes in lumbosacral spine were detected in 82% of patients by standard X-rays.
The 3D analysis of hyperlordosis lumbar spine model showed the maximum pressure on lumbar vertebrae surfaces L4 and L5.

Rising of amortization and tension substantial growth in model elements were also noted.

To all patients the system of pregravid management included a course of complex conservative therapy, which considerably reduced the intensity of orthopedic and neurologic symptoms of 19 patients (Group I). Four patients were operated on using minimally invasive decompressive and stabilizing method (Group II).

**DISCUSSION**

Considering predictable lordotic deformation of lumbar spine during pregnancy, planned decompressive and stabilizing actions should be as minimally invasive as possible and without rigid fixation.

On the four patients planning pregnancy we used the dynamic stabilization by DIAM to patients affected by degenerative disc disease and lumbar instability. The undoubted advantages DIAM are less trauma and the ease of surgical technique. However, it is not ideal, as it limits considerably flexibility and spinal motion.

We based our study on classic Schreiber’s scheme, choosing minimally invasive surgical techniques on women affected by degenerative disc disease, who were planning pregnancy. The surgical procedures were adapted by us with a focus on pregravid management of spine degenerative disease.

For such patient’s decompressive techniques as such intradiscal therapy, endoscopic techniques, microdiscectomy, and dynamic stabilization by DIAM are available. Rigid stabilization should be an exception for rare cases.

Seven patients gave birth (4 from Group I and 3 from Group II). All patients started a vaginal labor. Delivery involving surgery was exclusively done by obstetric indications, except the orthopedic ones.

**CASE ILLUSTRATION**

A 26-year-old nullipara woman S., planned pregnancy, and was affected by L4-L5 degenerative disc disease and lumbar instability. The surgical treatment of the L4-L5 herniated disc by Caspar’s microdiscectomy and monosegmental dynamic stabilization by DIAM for pregravid management gave immediate relief of all symptoms. Patient became pregnant 12 months after the surgical treatment. She now has 38 weeks of pregnancy (Fig. 1).

**Figure 1**

Figure 1: Large paramedium herniated L4-5 disc compressing L5 nerve root, pre-operative CT scan - axial view, (A) Post-operative X-ray A sagital view, (B) Post-operative clinical photos after successful L4-5 MDE and monosegmental dynamic stabilization by DIAM, 38 weeks of pregnancy (C, D)
A 34-year-old woman B., planned pregnancy, and was affected by multilevel degenerative disc disease and lumbar instability. The surgical treatment of the L4-L5 and L5-S1 herniated discs by Caspar’s microdiscectomy and polysegmental dynamic stabilization by DIAM for pregravid management gave immediate relief of all symptoms (Fig. 2).

CONCLUSIONS
The basic method of pregravid management of women suffering from spine degenerative disease is conservative treatment. However, if ineffective it is necessary to give
preference to minimally invasive spine surgical techniques (percutaneous nucleotomy, endoscopic discectomy, microdiscectomy only or in combination with dynamic stabilization, for example, DIAM technology).

References
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