Clinical and radiological features of cortical bone trajectory pedicle screw fixation of lumbar spine

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Background: Spinal fusion with pedicle screw fixation has become the gold standard of surgical treatment of degenerative conditions of the lumbar spine. The main drawback of this technique is its invasiveness associated with high complication rates. Consequently, a variety of minimally invasive spine procedures have been developed, the cortical bone trajectory (CBT) screw fixation being one of most promising. The study aimed to evaluate the imaging features, early clinical outcomes and complications of this new technique.
Material and methods: The study included 38 patients who underwent spinal fusion with CBT pedicle screw fixation between January 2016 and January 2018. The mean follow-up after surgery was 6 months.
Results: The surgical procedure included small midline laminectomy approach, bilateral facetectomy, unilateral or bilateral intervertebral cage insertion and navigation guided CBT pedicle screw fixation of the spine. Standing X-ray imaging was obtained prior to discharge and at three months after surgery. Follow-up CT scans at 1 year postoperatively were used to assess the fusion status. The mean blood loss, operation time and postoperative morbidity were significantly lower compared to traditional fusion techniques.
Conclusions: The CBT approach is comparable to the traditional techniques in terms of successful fusion rates and clinical outcomes, but with additional benefits of less blood loss, less muscle damage and earlier functional recovery.
Key words: cortical bone trajectory, pedicle screw, lumbar fusion.

Inguinal left ovary associated with Mayer-Rokitansky-Kuster-Hauser syndrome: initial diagnosis

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Background: Mayer-Rokitansky-Kuster-Hauser syndrome (MRKHS) is characterized by absent or rudimentary uterus and the upper part of the vagina, is the second most common cause of primary amenorrhea after gonadal dysgenesis.
Content: The presentation reviews the role of different imaging modalities in the diagnosis of MRKHS. An extremely rare case of MRKHS associated with a left inguinal ovary in a young woman is also discussed. A 21-year-old woman presented with primary amenorrhea. The patient had a female phenotype, normal stature, and normal secondary sex characteristics. Physical examination showed normal hymenal fringe and a blind pouch of vagina. Pelvic MRI performed with a 3.0T (Siemens Skyra) scanner (coronal plane T2WI with TR-4032ms, TE-71ms; transverse plane T2WI with TR-11140 ms, TE- 102ms and sagital plane T1WI with TR-879ms, TE-11msș slice thickness 4-6mm) revealed normal bilateral position of the kidneys, absent uterus, cervix, and proximal (upper) vagina. Fibrofatty tissue between the bladder and the rectum in the expected location of the vagina was also noted. The right ovary appeared normally sited with follicles in various stages of maturity. The left ovary, however, had atypical location in the left inguinal canal, with a relatively normal structure and small follicles. The diagnosis of MRKHS was confirmed.
Conclusions: MRKH syndrome is a congenital disorder of the female genital tract caused by the maldevelopment of the Müllerian duct. The incidence of ectopic ovary in MRKHS is ranging from 15% to 42%. The ovarian position serves a pivotal role in the strategy of gestational surrogacy. MRI is a useful and noninvasive imaging method in the diagnosis and evaluation of patients with MRKHS.
Key words: Mayer-Rokitansky-Kuster-Hauser syndrome, magnetic resonance imaging, inguinal ovary.