

SPATIAL ORIENTATION OF THE POINTS OF DETERMINATION OF THE ACETABULUM DURING ENDOPROSTHETICS OF PATIENTS WITH DYSPLASTIC COXARTHROSIS USING A PROTRACTOR.

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Objective of the study: a modified technique for measuring the angle between planar anatomical structures and for determining the point of remission of the true acetabulum in dysplastic coxarthrosis using a protractor.

Materials and research methods. The RSSPMCT Traumatology and Orthopedics has developed and implemented a device for measuring the angle between planar anatomical structures. A device for measuring the angle between planar anatomical structures is used as follows.

The angle of the degree is preliminarily determined on MSCT (Multispiral computed tomography) for remission of the true acetabulum (from 40 ° to 60 °). The device is adjusted to measure the angle between the planar anatomical structures and to determine the point of remission of the true acetabular.

The required angle is displayed on the protractor with an axial measuring scale, it is fastened using a movable protractor coupling with a screw and a screwdriver; and sterilized.

With surgical treatment. In the supine position on a healthy side, under spinal anesthesia, the lower limb is treated three times: from the fingertips to the iliac crest, with 2% iodine solution and alcohol. The incision is made 8 cm from the tip of the greater trochanter to the upper third of the thigh. The

skin, subcutaneous tissue and fascia lata of the thigh are dissected in layers. In parallel with this, a thorough hemostasis is performed.

The fascia is dissected along the fibers, then the tendon part of the gluteus medius muscle from the attachment point to the greater trochanter, then the joint capsule is dissected. On the lateral and medial sides of the femoral neck, two narrow Hochman retractors are installed. The capsule is opened. The assistant performs external rotation with adduction of the femur until the complete dislocation of the femoral head. Afterwards, the femoral neck is cut with a pendulum saw at the level of the Adams line with the removal of the head. Complete excision of the joint capsule is performed.

Results and research methods: for clarity, we give the following example:

Patient T., born in 1967, case history No. 652, was admitted to the department on January 29, 2019, with a diagnosis of Left-sided dysplastic coxarthrosis, grade III, FTS II, osteochondrosis of the lumbosacral spine. The patient was operated on January 31, 2019.

The angle of the degree of the true acetabulum, determined on the MSCT - (45o), is displayed on the protractor with an axial measuring scale and is fixed with a movable protractor coupling with a screw and a screwdriver. After the treatment of the acetabulum was carried out, i.e. the remnants of the round ligament and the altered cartilage were removed using ball cutters.

The size of the acetabular component of the implant was determined, a cementless acetabular component (No. 48) and an insert were installed. The femoral canal was treated with a hollow osteotome and a rasp, observing the direction of the femoral axis and anteversion at 15°.

Abstract: A modified device for measuring the angle between planar anatomical structures allows you to accurately determine the angle between them. This allows the remineration point to be centered in the true acetabulum for correct placement of the acetabular component.

All this contributes to an increase in the stability of the endoprosthesis, makes it possible to eliminate the pain syndrome and allows the patient to be activated earlier.

Relevance. Dysplastic coxarthrosis (DC) - as a result of dysplasia of the hip joint, occupies a leading place among the pathology of the musculoskeletal system. The significant prevalence of pathology, disability of patients of working age in the absence of unambiguous approaches to the choice of treatment method determine the constant interest of specialists in DC [1, 2, 4, 5, 8].

An effective method for treating DC is hip arthroplasty. According to various researchers, the proportion of dysplastic coxarthrosis in the structure of pathology, which is an indication for primary hip arthroplasty, is 2–8% [10], and among patients aged 30–45 years it reaches 29% [10]. Significant anatomical changes in the acetabulum, the proximal femur, the muscular corset of the thigh and high physical activity in young patients are considered the main causes of complications in the early and late postoperative period during hip arthroplasty under DC conditions.

Obviously, some of the complications are associated with the problems of implantation of the acetabular component of the endoprosthesis, this has a significant impact on the results of the

intervention and the likelihood of the development of instability of the acetabular component in the postoperative period.

It is no coincidence that some researchers refer to endoprosthetics in DC as a complex and non-standard hip arthroplasty [6, 9].

Therefore, a detailed study of the patterns of acetabular deformity in DC from the position of hip arthroplasty and intervention planning determines the relevance of this direction.

Objective of the study: a modified technique for measuring the angle between planar anatomical structures and for determining the point of remission of the true acetabulum in dysplastic coxarthrosis using a protractor.

Materials and research methods:

In the RSSPMCT Traumatology and Orthopedics, a device was developed and implemented to measure the angle between planar anatomical formations. A device for measuring the angle between planar anatomical structures is used as follows.

The angle of the degree is preliminarily determined on MSCT to remind the true acetabulum (from 40 ° to 60 °). The device is adjusted to measure the angle between the planar anatomical structures and to determine the point of remission of the true acetabular. The required angle is displayed on the protractor with an axial measuring scale, it is fastened using a movable protractor coupling with a screw and a screwdriver; and sterilized.

With surgical treatment. In the supine position on a healthy side, under spinal anesthesia, the lower limb is treated three times: from the fingertips to the iliac crest, with 2% iodine solution and alcohol. The incision is made 8 cm from the tip of the greater trochanter to the upper third of the thigh. The skin, subcutaneous tissue and fascia lata of the thigh are dissected in layers. In parallel with this, a thorough hemostasis is performed.

The fascia is dissected along the fibers, then the tendon part of the gluteus medius muscle from the attachment point to the greater trochanter, then the joint capsule is dissected. On the lateral and medial sides of the femoral neck, two narrow Hochman retractors are installed. The capsule is opened. The assistant performs external rotation with adduction of the femur until the complete dislocation of the femoral head. Afterwards, the femoral neck is cut with a pendulum saw at the level of the Adams line with the removal of the head. Complete excision of the joint capsule is performed.

Next, install the insert. The leg is rotated outward. The femoral canal is prepared for prosthetics using a reamer and a rasp. A hollow osteotome and a rasp are used to process the canal of the femur in compliance with the direction of the femur axis and anteversion at 15°. At the end of the formation of the canal, if necessary, put on the trial neck and head of the implant to measure the position of the femoral component and the length of the lower limb. After fitting, the leg and head of the endoprosthesis are installed, and the head is finally reduced. The stability of the endoprosthesis and the volume of passive limb movements are checked. During the operation, hemostasis is performed, a

thorough toilet of the wound with drainage with a polymer tube. The wound is sutured in layers, and then an aseptic bandage is applied.

The device was tested (determination of the point of remission of the true acetabulum) in 22 patients with dysplastic coxarthrosis with a positive result.

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The angle of the degree of the true acetabulum, determined on the MSCT - (45o), is displayed on the protractor with an axial measuring scale and is fixed with a movable protractor coupling with a screw and a screwdriver. After the treatment of the acetabulum was carried out, i.e. the remnants of the round ligament and the altered cartilage were removed using ball cutters.

The size of the acetabular component of the implant was determined, a cementless acetabular component (No. 48) and an insert were installed. The femoral canal was treated with a hollow osteotome and a rasp, observing the direction of the femoral axis and anteversion at 15°.

The femoral canal is prepared for prosthetics using a reamer and a rasp. Cementless stem (Zimmer # 5) and head (28 + 3.5) are installed in the femoral canal. Reduction of the endoprosthesis, careful toilet of the wound, hemostasis were performed.

Full range of motion in the hip joint, length restored. Polymer tubing left for drainage. Layered aseptic sutures and an aseptic dressing were applied to the wound.

On the fourth day, a partial load of the leg with crutches is allowed. The stitches were removed 18 days after the operation. The patient was discharged on 12.02.2019 in a satisfactory condition.

The immediate results of treatment up to 6 months after the operation were studied in 22 patients. At the same time, the patients led an active lifestyle, moved without additional support, there was no pain syndrome, but minor anatomical abnormalities were allowed that did not significantly affect the function of the limb in the form of shortening of the limb within 1-1.5 cm, limitation of movements in the hip joints within no more than 10 degrees.

Long-term results in the period from 1 to 2 years after the operation were studied in all patients. When studying, the main attention was paid to everyday and industrial activity and the support function of the limb. A good result was noted in 95.5% of cases, while a satisfactory result was noted in 4.5%.

Thus, the device for measuring the angle between planar anatomical structures is not traumatic, convenient and easy to use. Allows you to accurately determine the angle between the planar formations and the point of remission in the true acetabulum to centralize the acetabular component in patients with dysplastic coxarthrosis. All this contributes to a decrease in pain syndrome, an increase in the stability of the endoprosthesis and an earlier activation of patients. Recommended for widespread use in practical medicine.

Conclusions:

A modified technique for measuring the angle between planar anatomical structures and for determining the point of remission of the true acetabulum in dysplastic coxarthrosis allows you to accurately determine the angle between them.

The protractor allows you to center the remineration point in the true acetabulum for correct placement of the acetabular component. All this contributes to an increase in stability and prolongs the life of the endoprosthesis, makes it possible to eliminate pain syndrome and allows the patient to be activated earlier.

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