The use of modular resection hip endoprosthesis in the treatment of tumours.

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INTRODUCTION
The introduction of resection endoprostheses has made it possible to perform a surgery to save a limb in cases of bone tumours. Regardless of the producer, this type of endoprostheses has a modular structure (1). Thanks to the ability to freely put various elements together, it is possible to provide prostheses for bones of different length and in different joints. This paper presents the results of the use of modular resection endoprosthesis for hip replacement performed for oncological purposes in the Rehabilitation and Orthopaedics Centre in Krakow.

MATERIAL, METHODS, AND RESULTS
Between 2008 and 2015, thirteen Modular Universal Tumor and Revision System (MUTRAS) resection implants were used at our facility (fig. 1).

The uniqueness of this endoprosthesis consists in the layer of silver oxide that reduces the risk of infection (2).

Patients with tumours (13 cases)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Patients with tumours (13 cases)</th>
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<tbody>
<tr>
<td>6 women (average age 68.67; min. 59; max. 84; SD 10.11)</td>
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<tr>
<td>7 men (average age 68.43; min. 45; max. 85; SD 15.78)</td>
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Indications for surgery
In the group of women, these were: breast cancer metastases in four cases, one case of cervical cancer metastasis and one case of multiple myeloma focus.
In the group of men, the indications were: one case of male breast cancer metastasis, kidney cancer metastasis, multiple myeloma focus, squamous penile cancer metastasis, colorectal cancer metastasis, and prostate cancer metastasis. In one case, the focus was not determined given the equivocal histopathology results.

Acetabulum cup
In seven cases, bipolar heads without the acetabulum cup alloplasty were applied. In four cases, cemented acetabulum cups with large bipolar heads were used. In two cases, cemented acetabulum cup alloplasty was applied using snap acetabular cups.

Stem – bone loss in Paprosky classification
Two cases of type 1, one case of type 2, five cases of type 3A and five cases of type 3B

Hip implant length / femur resection length
Mean: 151.54 mm (min. 70 mm, max. 230 mm, SD 47.23)

Surgery duration
Mean: 128 minutes (min. 85 m, max. 170 m, SD 27)

Perooperative and postoperative blood loss
Mean: 1700 ml (min. 750 ml, max. 2600 ml, SD 673)

RBC transfusion
Mean: 6.61 units (min. 2, max. 18, SD 4.03)

FFP transfusion
Mean: 2.83 units (min. 0, max. 5, SD 1.47)

Hospitalisation duration
Mean: 15.66 days (min. 9, max. 25, SD 5.5)

In the observation period, two instances of endoprosthesis dislocation were noted in the case of one patient. At the first instance, the dislocated endoprosthesis was repositioned on the closed joint. In the second case, the open repositioning was carried out and the endoprosthesis head was replaced with a longer one. No complications such as infections to the operated area or endoprosthesis loosening were observed.

DISCUSSION
The use of modular implants allows one to make adjustments to the endoprosthesis length and rotation after the stem is implanted (3). This facilitates the orientation of endoprosthesis elements in a way that minimises the risk of dislocation. It is high because of the decreased muscle stability resulting from the surgical margin after tumour removal.

The application of resection endoprosthesis made it possible to maintain the limb and the patient's ability to walk. Patients can put their entire body weight on the limb after the surgery. What is more, the pain reduction (confirmed by VAS) was also of crucial significance. Resection alloplasty radically increased the quality of life of the patients operated on because of tumours.

REFERENCES