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A METHOD FOR MARKING THE LOCATION OF BREAST CANCER TUMOR INDICATED FOR NEO-ADJUVANT CHEMOTHERAPY

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ABSTRACT

Sometimes, histological investigation of a tumor is impeded after neoadjuvant chemotherapy due to full clinical remission, i.e. the tumor cannot be located through palpation, X-ray and macroscopically after mastectomy.

The authors aim to landmark the tumor before after neoadjuvant chemotherapy, thus facilitating its location through X-ray and dissection after changes due to the cytostatic preparation admistered.

Materials and methods: The marker is a radio-opaque metal clip, introduced through a puncture needle and placed in the center of the tumor.

After chemotherapy, contrast mammography helped identify the changes in tumor size in relation to the marker. Intraoperatively, the pathologist located the clip, the latter being in some cases the only landmark for primary localization of the tumor.

Our initial results from the application of the method are encouraging: mammography visualized the clip and served as a guide during surgery and macro- and microscopic morphological investigation.

Key words: marking of tumor, neoadjuvant chemotherapy

INTRODUCTION:

In recent years, the application of neoadjuvant chemotherapy has been increasingly used in the treatment for breast cancer. Frequently, this allows achieving different degrees of clinical remission, and has had broadened the possibilities to use sparing radical surgical techniques. However, problems arise regarding macroscopic and histological investigation of the tumor. Clinical regression may render impossible precise location and investigation of the area round the tumor that is not seen macroscopically after chemotherapy. In our practice, we experienced difficulties in the pathomorphological investigation of operative specimens in patients with full regression in the area of primary localization of the tumor. To overcome them, we invented a method to facilitate marking the tumor location in breast tumors indicated for neoadjuvant chemotherapy.

MATERIALS AND METHODS:

The tumor was preoperatively marked with a radio-opaque metal clip. Clips used we were either factory-made silver clips, or a tantalum staple from mechanical staplers. Markers were introduced using a technique of our own, in which a puncture needle was used to percutaneously penetrate into the center of the tumor. In the needle's ear, a V-shaped clip was placed, which was set into place in the tumor with the help of metal wire, after which the latter was slowly pulled out.

Following neoadjuvant treatment, a thorough clinical examination and control mammographies were performed to assess the effect of chemotherapy by comparing clinical and X-ray findings regarding the size of tumor before and after treatment.

RESULTS:

Landmarking was found successful in all patients - the clip was visualized well by contrast mammography after chemotherapy. In three patients, full clinical remission had been achieved, and the clip was the only orientation for tumor location. In the first pathological sectioning of the specimens, the clips were hard to find in the tumor mass. In patients with full clinical remission, the operative specimen was marked by a guiding metal wire, and under the X-ray control the metal clip was easy to find. No macroscopically suspicious areas were found in these patients.

DISCUSSION:

The idea to preoperatively mark the tumor area aimed to facilitate location and preoperative pathomorphological investigation. Besides, it proved necessary to have a better orientation concerning the location of the tumor in the breast after chemotherapy and surgery, so that the extent of changes in tumor size after chemotherapy could be estimated. The initial trial of the method in clinical practice showed that a metal clip was a reliable mark. In our opinion, clip-marking of the tumor is very useful in view of the fact that in modern oncotherapy more and increasingly effective preparations are available, which make it possible to have better control on the disease and expect full remission.

Implementing the idea of intra-tumor marking into practice with the aim to provide better landmarks in the breast and its pathological lesions proved successful through the application of radio-opaque metal clips using the technique we invented.