

A METHOD FOR DETECTING MORE LYMPH NODES AFTER RADICAL OPERATION FOR GASTRIC CANCER

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ABSTRACT

Removing and detecting as much as possible lymph nodes in radical operations for gastric cancer is important part of the modern approach in this disease.

The aim of the study is to evaluate the effect of fat-clearing technique for detecting more lymph nodes after lymph node dissection in gastric cancer surgery. Also to prove that putting the specimen consecutively in solutions of formaldehyde, alcohol, acetone and xylol could help in detecting more undetectable with classical methods lymph nodes.

15 surgical specimens containing perigastric lymph and adipose tissue in great and lesser curvature, and the tissue derived from dissection of second compartment. First with conventional method by inspection and palpation as much as possible lymph nodes are detected in fresh specimen. After that the stomach is removed and the remaining adipose and lymph tissue is fixated with formaldehyde followed by fat-clearing technique. Then searching of undetected with conventional method lymph nodes is performed, using palpation and trans-illumination of the fat-cleared specimen.

With fat-clearing method 2 to 9 more lymph nodes per specimen were detected. Most of them are smaller than 5 mm in diameter. Their color was bluish or yellow and harder than rest of the tissue.

With fat-clearing technique is possible to improve detection of lymph nodes after lymph dissection in gastric cancer

Key words: gastric cancer, lymph nodes detection

INTRODUCTION:

When consider clinical importance for detecting

more lymph nodes and our experience in which we stated that with classical searching by inspection and palpation is not always possible to find enough lymph nodes, we decided to apply a fat-clearing technique for detecting as many lymph nodes as possible in resected specimen. We used our modification of the method, which is easily performed. In this paper we present the method and results after its application.

MATERIALS AND METHODS:

Immediately after operation, all the material removed (stomach with perigastric lymph nodes and lymph nodes from second compartment) was examined by the so-called post-operative lymph dissection in a specially equipped laboratory. Perigastric and lymph nodes from second compartment were detected by inspection and palpation and plotted on a specially designed "lymph map", taking into account the location, texture and size of the nodes. Then, each group of lymph nodes were removed from the "lymph map", and sent for histological investigation placed in glass bottles with 10% formalin solution with labels indicating the group and number of lymph nodes.

The rest of the material collected was processed using a fat-clearing technique, applied as follows:

The adipose lymph vessel tissue was separated from the colon wall and was put into 10% formalin solution for 24 hours, dyed with methylene blue. Then it was consecutively placed into several solutions in the following order: 95% alcohol for 24 hours, 100% acetone for 24 hours, 100% xylol for 24 hours until complete fat removal was obtained and the material had become translucent. After soaking in xylol, the material was thoroughly washed with water and was processed in the lab for postoperative lymph dissection on a well-lit glass surface, on which through combining palpation and trans-illumination, even minute

lymph nodes could be detected, usually bluish in color and harder than the adjacent tissue layers. Thus detected, the lymph nodes were sent for routine histological investigation. This method we performed in 15 surgical specimens, containing perigastric adipose lymph vessel tissue from great and lesser curvature, as well as tissues from lymph dissection of second compartment.

RESULTS:

With fat-clearing technique 2 to 9 more lymph nodes per specimen were detected. 75% of them are smaller than 5 mm in diameter. Their color was bluish or yellow and harder than rest of the tissue.

DISCUSSION:

Despite evident clinical importance of finding more undetected with classical technique lymph nodes, this new method is not widely accepted in clinical

practice. The main reasons are its labor and time consumption, the need for extra work of the staff, as well as raise the cost of the treatment. In the literature the method is describing as fat-clearing, but there are different combinations of chemicals and duration of their application. Almost everybody agree that with this method more lymph nodes are detected. This in some cases could change the stage. In our cases there was no change of the stage, but in almost all of them there was detecting as least 15 lymph nodes, according to the TNM classification. In 30% of the cases with classical method less than 15 nodes were detected. After fat-clearing technique only in 1 case the number was less than 15.

CONCLUSION:

With fat-clearing technique is possible to improve detection of lymph nodes after lymph dissection in gastric cancer.

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