

Can Analysis of Washings Sucked Out during Laparoscopic Surgeries Improve Lymph Node Yield?

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Received on: 24 September 2023; Accepted on: 28 October 2023; Published on: 11 January 2024

ABSTRACT

Introduction: Lymph node metastasis is one of the most important factors determining survival in most malignancies. Better lymph node yield improves survival in many cancers.

We tried to analyze the laparoscopic surgical washings for the presence of lymphatic tissue/deposits to improve information on nodal involvement. Saline is instilled and washings are sucked out during laparoscopic surgeries. How much information on lymph node involvement is lost because of these washings not being analyzed is an important question we wanted to answer.

Materials and methods: We prospectively evaluated the surgical washings of patients undergoing laparoscopic surgery at our institution from May 2022 to December 2022. All patients with biopsy-proven malignancies who underwent laparoscopic surgery including regional nodal assessment were included in the study. These included patients with carcinoma cervix, carcinoma stomach, carcinoma esophagus, and carcinoma rectum. The only exclusion criterion was not having proof of malignancy through biopsy. The pelvic nodes were separately removed in an endobag for patients with carcinoma cervix, minimizing spillage.

The surgical wash fluid obtained from routine irrigation and suction of the surgical field with 0.9% NS (minimum of 1L) was collected. Unfractionated heparin of 1 mL was added to the fluid. After 24 hours, the solution would be centrifuged and analyzed by the pathologists. Suspicious tissues would be analyzed for the presence of lymphoid material and tumor deposits. A total of 50 patients were analyzed, which included 32 patients with carcinoma cervix, eight patients with carcinoma stomach, four patients with carcinoma esophagus, and six patients with carcinoma rectum.

Results: Amongst the 50 patients studied, none of them had the presence of lymph nodes in the surgical wash fluid.

Conclusion: A simple analysis of the surgical washings of patients undergoing laparoscopic cancer that included nodal dissection failed to provide better information on nodal involvement. With the background of limitations of our study, better handling of fluid irrigated and sucked out may lead to better information. But as of now, analysis of irrigation fluid during laparoscopic surgery is not useful.

Keywords: Laparoscopic, Nodal yield, Surgical washings.

World Journal of Laparoscopic Surgery (2023): 10.5005/jp-journals-10033-1592

INTRODUCTION

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We tried to analyze the laparoscopic surgical washings for the presence of lymphatic tissue/deposits to improve information on nodal involvement. Saline is instilled and washings are sucked out during laparoscopic surgeries. How much information on lymph node involvement is lost because of these washings not being analyzed is an important question we wanted to answer.

MATERIALS AND METHODS

We prospectively evaluated the surgical washings of patients undergoing laparoscopic surgery at our institution from May 2022 to December 2022. All patients with biopsy-proven malignancies who underwent laparoscopic surgery including regional nodal assessment were included in the study. These included patients with carcinoma cervix, carcinoma stomach, carcinoma esophagus, and carcinoma rectum. The only exclusion criterion was not having proof of malignancy through biopsy. The pelvic nodes were separately removed in an endobag for patients with carcinoma cervix, minimizing spillage.

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How to cite this article: Shanmugam S, Shivakumar A. Can Analysis of Washings Sucked Out during Laparoscopic Surgeries Improve Lymph Node Yield? *World J Lap Surg* 2023;16(3):173–174.

Source of support: Nil

Conflict of interest: None

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Table 1: Baseline characteristics of the patients included in the study

Diagnosis	No. of patients
Early carcinoma cervix (IB1, IB2, IIA1)	6
Carcinoma cervix IIB S/P CRT	26
Carcinoma stomach S/P pri-op CRT	6
Early gastric cancer	2
Carcinoma distal esophagus S/P CRT	4
Carcinoma rectum S/P pre-op CRT	6

CRT, chemoradiotherapy; S/P, status post

cervix, eight patients with carcinoma stomach, four patients with carcinoma esophagus, six patients with carcinoma rectum.

RESULTS

Amongst the 50 patients studied, none of them had the presence of lymph nodes in the surgical wash fluid.

The Table 1 deals with the patient characteristics included in our study. The stage and details of any preoperative therapy are mentioned.

DISCUSSION

Scientific research involves innovation and experimentation, and these methods need not be necessarily complicated. We presented a simple idea to examine the surgical washings of cancer patients undergoing laparoscopic surgery for the presence of lymphatic tissue/deposits. The surgical washings were collected in a container, added to a heparin solution, and then analyzed.

Peritoneal wash cytopathology has been well-established as a diagnostic and staging tool in the management of various malignancies including ovary.¹ Most of the studies focused on analyzing the presence of malignant cells in the wash fluid which would upstage the disease.²⁻⁵ Here we focussed on the presence of lymphoid tissue and deposits in the fluid irrigated and sucked out during laparoscopic surgeries.

We all know that improving the nodal yield leads to better information and this leads to stage migration and better survival for patients with early-stage disease. This is especially true for the malignancies included in this study such as cervix, rectum, esophagus, and stomach.⁶⁻⁸ Improving surgical technique is the first and foremost way to improvise nodal yield. We sought out a simple idea to improve the information on nodal metastasis by analyzing the surgical washings where the missed nodes may be found. Unfortunately, none of our patients had either lymphatic tissue or tumor deposits in the surgical washings.

Several factors could explain the negative results of this study. Most of the patients underwent preoperative therapy either in the form of chemotherapy or radiation, which usually reduces the nodal yield significantly. Spilled-out lymphatic tissue out of the field of suction and irrigation may be another reason for the lack of lymphatic tissue/tumor deposits. This sort of displacement is further enhanced by the pneumoperitoneum. Many other hidden factors could be the reason behind the study's negative findings.

It is observed that cohesive nonkeratinizing squamous cell carcinoma cells in cancer cervix can be mistaken for reactive

mesothelial cells, especially postirradiation, which might be the reason for missing out nodal tissue or the presence of squamous deposits in them.⁹

Even though this study has negative results, we still want to report them to encourage further research in this area and achieve better information. Our study has some limitations of its own. The procedure involved in analyzing the presence of lymphatic tissue/tumor deposits could be augmented by ultracentrifugation and ultraslicing techniques in future studies.

CONCLUSION

A simple analysis of the surgical washings of patients undergoing laparoscopic cancer that included nodal dissection failed to provide better information on nodal involvement. With the background of limitations of our study, better handling of fluid irrigated and sucked out may lead to better information. But as of now, analysis of irrigation fluid during laparoscopic surgery is not useful.

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