Laparoscopic-Assisted Trucut Biopsy for the Diagnosis of Linitis Plastica

Gamal E H. A. El Shallaly1*FRCSEd, MFSTEd, MMAS (Dundee), CertTHE(Dundee)
1Alzaiem Alazhari University, Sudan
*Corresponding author: Dr. Gamal E H A El Shallaly, Alzaiem Alazhari University, Khartoum, Sudan, P.O. Box 2910 Khartoum, Sudan; Tel: +249 907984978; Email: gamalshallaly@hotmail.com
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Abstract

Linitis plastica is a type of adenocarcinoma of the stomach that is difficult to diagnose by routine endoscopic biopsy. This is due to its deep submucosal spread and characteristic pathology.

We present a case of linitis plastica that was diagnosed in a 64-year-old woman. After several negative endoscopic biopsies, a trucut biopsy was done during diagnostic laparoscopy. This was successful in obtaining a positive result and the patient suffered no complications. Consequently the patient was referred for palliative chemotherapy. We present the case and discuss this biopsy technique that proved to be simple, safe, and efficient.

Keywords: Linitis Plastic; Stomach Cancer; Gastric Adenocarcinoma; Trucut Biopsy; Needle Core Biopsy; Laparoscopy; Endoscopy

Introduction

Linitis plastica is a type of adenocarcinoma of the stomach that is both rare and difficult to diagnose and has poor prognosis. Median survival is 6-8 months and the 5 year 8% (3-10%) [1]. Unlike other types of adenocarcinomas that can readily be identified at endoscopy as an ulcerative, flat, or polypoid lesions, the features of this cancer are so subtle that it can be missed unless a high level of suspicion is practiced. In addition, mucosal biopsies often give false negative results as the tumour is deep and its malignant cells are separated by layers of fibrous tissue. We encountered this difficulty in the diagnosis of this tumour that necessitated the search for another method to take biopsies.

Case Report

A 64-year-old woman presented with over a year's history of symptoms of dyspepsia, epigastric pain, nausea, vomiting, loss of appetite and loss of weight. On clinical examination, she was cachexic and anaemic. No masses or organomegaly were felt in the abdomen. Endoscopy showed features suspicious of linitis plastica. Mucosal biopsies, done twice, did not show malignant cells despite attempts to take deep bites. A CT scan was done and showed thickening of stomach wall further supporting the diagnosis which still lacked histological confirmation to start any form of therapy (Figures 1: a, b).
The technique of Laparoscopic-assisted trucut biopsy

A diagnostic laparoscopy was planned with intention to do a laparoscopic assisted trucut/core biopsy (LA-TCB). Initial laparoscopic inspection showed ascites but no liver metastases. An area of whitish tissue on the anterior surface of the body and the antrum of the stomach stood clear of the rest of the pinkish-coloured normal stomach wall.

The trucut biopsy (Figures 2: a, b) could not be introduced through any of the available ports. It was, therefore, introduced through the skin in the epigastric area and aimed into the presumed malignant whitish tissue of the stomach. The biopsy needle was introduced 3 times through the same spot in the skin/abdominal wall, but at different points of the stomach. Thus, 3 tissue biopsies were taken (Figures 3: a, b).

A nasogastric (NG) tube was left in the stomach and its efflux observed for 24 hours looking for evidence of internal bleeding. The patient was observed for signs of haemorrhage or development of acute abdomen indicating perforation.
Discussion

The diagnosis of linitis plastica is difficult at the macroscopic and microscopic levels. In middle aged patients with dyspepsia, gastric malignancy should be excluded by endoscopy. At endoscopy, there may be no macroscopic ulcerative or exophytic/polypoid lesions. A high index of suspicion should, however, be taken when abnormally large nodular gastric folds are seen and the stomach lumen is difficult to distend by the air jet. Linitis plastica is notorious for its false negative endoscopic biopsy results. Search is on for methods that increase the accuracy of the biopsies. Several methods have been described, such as endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) and trucut biopsies (TCB), and EUS-guided fine needle biopsy (FNB) [2].

In addition, special endoscopic biopsy techniques such as the deep and large biopsy, and the bite-on-bite and endoscopic mucosal resection (EMR) techniques were described to improve the yield of the tissue taken to 80% [3].

These techniques have the advantages of being non-invasive as well as increasing the accuracy of the biopsy. They do not require general anaesthesia. However, they require expertise to do and treat the minor complications that may occur. Such facilities are not usually available except in highly specialized hospitals. Moreover, precious time may be lost in referring patients to such facilities.

Our patient had endoscopic biopsy at another health facility and also by me. Despite taking several bites at the same site in order to obtain deeper tissue, the biopsies did not succeed in obtaining malignant cells. This gave me the idea that if the cancer cells were difficult to get from the inside of the stomach, they could be easier obtained if approached from the outside of the stomach wall. Hence, it was planned to do a trucut biopsy during diagnostic laparoscopy.

The efficiency of TCB has been shown before. TCB with its 16-18 G gave a high diagnostic rate 82-100% compared to fine needle (54-67%) in abdomino-pelvic tumours [4].

The risk that TCB may cause seedling of tumour cells at its entry and exit from the abdomen has been shown by other studies to be negligible [5-8].

On the balance every effort should be done to hasten the start of therapy for these patients. Since the survival time of patients with linitis plastica is short, early diagnosis and treatment is essential. This method of LA-TCB can be done when endoscopic biopsy is negative in a patient with suspected linitis plastica. It serves to obtain tissue for histopathological examination while doing a diagnostic laparoscopy.
Conclusion

The endoscopic features of linitis plastica are subtle and a high index of suspicion should be kept in mind. Laparoscopic trucut biopsy is one of the possible diagnostic tools.

Ethical clearance:

This has been obtained from the Ethical and Research Committee at Khartoum North Teaching hospital, Sudan. The patient informed consent has also been obtained.

References


