Comment optimiser l'examen histologique d'une pièce de mucosectomie ?

How can the pathological examination of a mucosectomy specimen be improved?

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VIEW OF A GASTROENTEROLOGIST

Endoscopy therapy of high grade dysplasia and adenocarcinoma limited to the mucosa in the upper GI tract has been proposed as a minimally method of treatment in many papers [1-6]. The basis for endoscopic therapy is that the rate of lymph node metastasis in HGIN is zero and in invasive cancer confined to the mucosa it is very low. The problem of endoscopic therapy is the absence of confirmation that the disease is limited to the mucosa. Endoscopic ultrasound has improved the staging of tumour depth of invasion with accuracy in 75-85% when high frequency probes are used in distinguishing between mucosal and submucosal disease [5].

The main advantage of EMR is the provision of a large pathology specimen extending into the submucosa. The depth of cancer invasion can be assessed with great accuracy [10]. Disease confined to the mucosa with clear margins can be considered to be completely resected. However, in most of the studies the rates of en bloc resection are still limited. The most commonly used method is the piecemeal technique. With this procedure it is difficult to determine the completeness of resection. The pathologist cannot give a correct histological statement due to the problematic to reconstruct the lesion with several resected specimen. To overcome these limitations and fulfil oncological principles of R0 resection the en-bloc resection with adequate safety margins was developed [4, 7, 8, 9]. The endoscopic submucosal dissection is superior to other endoscopic methods in the treatment of early cancer and provides an en-bloc specimen.

After ESD the pathologic assessment of the depth of cancer invasion, the degree of differentiation of the cancer and the involvement of lymphatic or vessels allow the risk for lymph node metastasis. The presence of lymph node metastasis has a significant adverse influence on the patients' prognosis and the risk for developing lymph node metastasis or distant metastasis then is weighed against the risk for surgery.

For the endoscopic treatment it is also necessary to know the depth of invasion. In EMR or ESD specimens from Barrett's oesophagus or the stomach the cut off value for invasion into the submucosa is 500 μm. The rationale for this value is that when the depth of invasion is less than 500 μm into the submucosa (sml), the risk of nodal metastases is low [11] and endoscopic treatment can be considered adequate. In the colon the risk of nodal metastases is low when cancer invasion of the submucosa is limited to the most superficial third and extends laterally to less than 50% of the width of the mucosal lesion. An EMR from the large bowel can be considered safe when invasion of the submucosa is less than 1000 μm [12].

In the oesophageal squamous mucosa 3 layers are described (m1, m2, m3). The submucosa is also divided in 3 sectors of equivalent thickness (sm1, sm2, sm3). Cancer invading only the superficial levels (m1 and m2) usually can be treated successfully with EMR. Invasion into deep layers (sm2 and sm3) usually requires surgery for a cure. For practical reasons an empirical cut off value has been adopted. When cancer invasion of the submucosa is less than 200 μm the risk of nodal metastases is small and EMR can be considered safe [13].

Conclusion

Selection of lesions that are amenable to endoscopic resection therapy is the first step. The removal of the
lesions in a single piece is important to evaluate the curability of the treatment, since an accurate histopathological diagnosis of the resected specimen is essential. The pathologist evaluates the histology and assesses the degree of differentiation of the tumour, the depth of invasion and the completeness of excision. The resection is complete if all the margins (vertical and lateral) are free from tumour tissue. Normally a complete evaluation of the submucosa invasion is not available in EMR specimens. A compromise consists in measuring in microns the depth of invasion and comparing the risk of lymph node metastasis with the empirical cut off value.

Accuracy in terminology is mandatory. For this reason a good working relationship between gastroenterologists and pathologists is essential. Both should discuss and uniform the aspects of their techniques and tissue handling procedures. Accurate reporting and description of the morphologic findings by the endoscopist can contribute to the effectiveness of the pathologist in interpreting the results.

VIEW OF A PATHOLOGIST

Introduction

Through the improvement of the endoscopic techniques it became possible within the last decades to recognize even very minute neoplastic changes throughout the whole gastrointestinal tract.

Contrary to the upper gastrointestinal tract colon carcinoma is only diagnosed when there is invasion into the submucosal layer present.

Unfortunately the term “Endoscopic mucosal resection” is the wrong term for local endoscopic techniques since not only the mucosa will be removed but the submucosal layer (or at least parts of it) down to the muscularis propria as well.

After local endoscopic resection of early carcinoma these patients need an oncological follow-up comparable to surgical resected individuals. Patients need to be reported to local or national cancer registries as well.

Every local endoscopic resection requires a close interdisciplinary approach. The gastroenterologist has to have a close communication with his pathologist to avoid over-or under diagnosis. The best setting is if a surgeon is close by as well in case of complications or need to be reported to local or national cancer registries.

For the histopathological examination and risk stratification it is important to receive the specimen as one piece. The specimen will be cut totally into slices in a 90 degree angle towards the surface including the polypectomy area. Larger specimens should be placed on cork and fixed by needles and placed immediately into a fixative.

Stomach

Low grade dysplasia/intraepithelial neoplasia of gastric mucosa is called adenoma comparable to the colon.

High grade dysplasia is a very rare finding. In the literature the time that passes by until the development of carcinoma is given as 6 months on average. This means that the carcinoma was probably already present in the biopsies but misinterpreted as high grade dysplasia. Gastric specimens are preferably worked up in histopathology as single piece resection. Endoscopic resection specimen should always be pla-

1. Site of specimen
2. Type of neoplasia
3. Grading of neoplasia
4. Size of neoplasia
5. presence/absence of vessel invasion
6. description of front of invasion (single cells present/absent)
7. resection status (complete/incomplete)
   a. if incomplete: lateral or basal
8. TNM-classification

The histological report could contain a short gross description but needs not to contain a microscopic description.

For the different sites in the gastrointestinal tract different handling of the specimen is recommended to give best results to answer all of the above mentioned necessities.

Colon

Polypectomy in the colon is a standard procedure. Polyps should always be removed totally; preferably no piece meal resection. Adenoma is defined as low grade intraepithelial neoplasia/low grade dysplasia and could contain high grade intraepithelial neoplasm/dysplasia. In case of carcinoma low risk and high risk criteria can help to decide pro or contra further therapy. A pragmatic subdivision of the submucosal layer into (upper/middle/lower third) sm1-sm3 needs to be carried out in order to estimate the risk of lymph node metastasis. A more accurate approach would be to measure the depth of invasion in micrometers. By definition sm1 is comparable to 1000 μm of invasion [12]. Additionally, the biological behavior of the tumour cells at the front of invasion (tumour cell dissociation) helps to give a more exact estimation of the risk of nodal involvement. Low risk: G1,G2; sm1-sm2, L0, R0, tumour cell dissociation: none/slight. All remaining patients belong to the high risk group and should be sent to surgery since the risk for lymph node metastasis is higher than the risk of the surgical procedure.

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