EDITORIAL

Centenary of Crile's Operation. From radical to selective neck dissection

Il centenario della pubblicazione di Crile. Dallo svuotamento radicale alla linfoadenectomia selettiva

One hundred years ago, George Washington Crile published his paper on neck dissection performed on 132 patients with squamous cell carcinoma (SCC) in the Head and Neck area (Crile). To celebrate this Centenary, Acta Otorhinolaryngologica is publishing, in this issue, an update in clinical research, diagnosis and treatment of neck metastatic nodes.

The most important prognostic factor in the management of head and neck cancer is still the presence of cervical nodal metastasis, as a century ago. Once the tumour involves neck nodes, survival drops by almost 50%.

Today, metastatic neck nodes can be diagnosed preoperatively in up to 95% of cases by palpation, in combination with either ultrasonography (US), computed tomography (CT), magnetic resonance (MR) or fine needle aspiration cytology (FNAC), and, when resectable, must be removed at surgery.

However, the main problem is to detect micro-metastases (cN0 pN1) which are found in up to 50% of clinically negative nodes in patients with Head and Neck SCC undergoing neck dissection and the early removal of which may improve survival.

At present, no clinical staging modalities or biological markers are available to reveal the presence of nodal cN0 pN1; for this reason, treatment of the clinically negative neck is debated. Some surgeons perform elective neck dissection or neck irradiation in all N0 cases in order to offer the best chance of cure; others prefer a wait-and-see policy, treating the neck only when a metastatic node is detected clinically: using this approach, associated morbidity is avoided in cases (at least 50%) that prove to be disease-free.

Improvements in surgical modalities and functional results over the last ten decades have been based on technical and on philosophical considerations. Improvement in techniques allows the severe functional side-effects of Crile's Operation to be avoided. Philosophical debates introduced the concept of nodes at risk. I am going to briefly discuss the main steps of this evolution.

Radical surgery

The classic neck dissection, described in the landmark article by George Crile and made popular by H. Martin has been standard care in the management of neck nodes for almost 70 years. This operation includes removal of all neck nodes together with 3 important structures: sternocleidomastoid muscle, internal jugular vein and accessory nerve. Satisfactory oncological results are achieved but quality of life of the patients is severely affected by shoulder dysfunction.

Functional surgery

In the sixties of the 20th Century, Suarez described a more conservative technique: he removed the lymphatic network and the nodes contained in the cervical fascial envelope, preserving muscles, veins, and nerves. Over the next few years, this technique gained acceptance with the teachings of E. Bocca, J. Gavilan and R. Jesse demonstrating its oncologic safety together with good functional results. Today, this operation, defined "Modified Neck Dissection", is widely performed all over the world.

Statistically guided conservative surgery

Recently, several more conservative variants, defined as "Selective Neck Dissection" have been introduced in clinical practice. Their rationale is based on the results of many investigations showing that tumours arising in different areas of the head and neck region (tongue, oropharynx, larynx, …) tend to give rise to nodal metastases in different levels of the neck. For example, nodal metastases from laryngeal cancers are often found at levels II-IV, those from malignancies in the floor of the mouth, at levels I-III. Only these nodes, defined "at risk", on a statistical basis, are removed in Selective Neck Dissections.

Functional targeted conservative surgery

In the last few decades, functional studies on lymphatic spread, referred to the identification of the Sentinel Node (SN), have been conducted all over the world. The SN is defined as the first node reached by the lymphatic stream assuming an orderly and sequential drainage from the primary tumour. It should be predictive of the nodal stage. Histological examination should indicate whether there are micrometastatic nodes in the neck. If this hypothesis were confirmed, Neck Dissection should be performed only in patients with a positive SN. The SN is identified with at static lymphoscintigraphy. A dynamic lymphoscintigraphy, Lymphatic Mapping, identifies all the nodes reached by the lymphatic stream from the tumour. Several studies have demonstrated that tumours arising in the same site show great variability in lymphatic spread. Thus Lymphatic Mapping would allow personalised selective neck dissection, for each patient, to be performed, removing only the nodes at risk of metastasis.

The future: molecular guided dissection

In the near future, molecular diagnostic modalities of the primaries and nodes could allow us to identify the micrometastatic nodes so that only patients with disease, and not all those at risk, will be submitted to treatment.

FAUSTO CHIESA
Editor-in-Chief