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Pulmonary cancer and hypertrophic osteoarthropathy

Brief relief of the osteoarticular symptoms after surgical ressection

José Rodrigues Pereira, José Ribeiro Aguiar Neto, Flora Kazumi Ikari, Sueli Mayumi Nikaedo

Instituto do Câncer Arnaldo Vieira de Carvalho - São Paulo, Brazil

A case of adenocarcinoma of the lung in a 57 year-old patient associated with hypertrophic ostearthropathy is reported by the authors. The paraneoplastic manifestation occurred after the pulmonary symptoms and receded spontaneously after a right inferior lobectomy was performed. Osteoarticular symptoms returned near after a tumoral recurrence. Articular pains disappeared 48 hours after the tumoral recurrence ressection of the chest wall and clubbing disappeared completely after the 3rd. week.

UNITERMS: Pulmonary cancer. Adenocarcinoma. Hyperthrophic osteoarhropathy.

INTRODUCTION

Described for the first time in 1868, hypertrophic osteoarthropathy (HOA) can be defined as a syndrome characterized by proliferative chronic periostitis of the long bones, digital clubbing, artritis, synovitis and arthralgia and, many times, causing incapacity.

Within the neoplastic diseases related to HOA, pulmonary cancer is a prominent one. Osteoarticular manifestations may precede the pulmonary in several months and, as the clinic condition is invariably subestimated and understood as being a rheumatic disease, we can frequently observe a delay in the bronchial cancer diagnosis (6).

Literature describes the frequent association of this syndrome to the bronchial adenocarcinoma and considers as very unusual the concomitance with small cell carcinoma (1).

The case presented illustrates clearly the HOA shades and the interference in the treatment of the osteoarticular symptoms development.

PRESENTATION

CBR, 57 year-old, white, actor, since the end of July 1991, began to claim on insidious and progressive pains at the dorsal region of the right hemithorax. Some weeks after, he noticed digital clubbing of the hands and legs, besides articular ankle pains and a slight local edema. Persistence of the thoracic pains caused his visit to a physician who identified, radiologically, a small mass projected in direction to the apical segment of the right inferior lobe, understood as being a consequence of tuberculosis. In the next radiological control procedures, a progressive increase of the injury was observed, followed by more intensive thoracic pains and arthralgia. The bronchoscopy and transparietal pulmonary biopsy done were not conclusive. Due to the diagnose indefinition, in January 14, 1992, a exploring thoracotomy was done. The presence of an adenocarcinoma in the right inferior lobe was identified. Inferior lobectomy with ressection of the costal arches in blocks was done (surgical stage = T2 N0). A complete disappearing of HOA was observed 30 days after surgery.

October, 1992 on, patient observed again thoracic pains in the same local previously described and increasing progressively. He also observed the return of the clubbing of the extremities, pain in axles and knees, followed by a local edema and phlogystic manifestation, besides difficulty in movements as a consequence of the arthralgia. Tumor recurrence on the posterior right wall of the chest was confirmed in May, 1993. Patient was submitted to a ressection of the segment of the thoracic wall involving three costal arches and comprising in its totality the tumor recurred in July 19, 1993. Two days after surgery the patient informed a complete disappearing of the arthralgia and the phlogystic manifestation. Digital clubbing disappeared completely after three weeks.

COMMENTS

The case above is quite illustrative in what refers to delay in the pulmonary neoplasia diagnose when manifestations and symptoms of rheumatic diseases are associated to it. Tumor recurrence confirmation was difficult as well, although paraneoplastic syndrome has acted as a real biological marker.

Literature describes relief of the osteoarticular symptoms even four months after the neoplastic treatment. Complete disappearing of the arthralgia within the first 48 hours after ressection of tumor called the attention. This should probably be a result of the sudden reduction of the serum levels of substances with chemical structure similar to the hormones produced by neoplasia. In HOA manifestations, increase in the serum levels of the following hormones is made reference: growth (3) and estrogen (4). More recently, presence of a substance in the granule platelets has been identified as capable of changing the characteristics of the endothelium-platelet unit, causing modifications in the microvascular system of the extremities. This substance is nominated as the platelet derived growth factor (PDGF)(7).

Although surgery in what refers to oncologic terms is more adequate and efficient in the control of paraneoplastic diseases and consequently of the HOA, relief of the syndrome is experienced in both chemotherapy (5) and in radiotherapy, tumor even not being completely exterminated (2). In this circumstance, it is probable that therapy changes the biological behavior of the remaining tumor. So, even in patients where neoplasia can not be faced surgically, other treating manners should be tried, even if only with palliative purpose, with the objective of minimizing the symptoms caused by the paraneoplastic syndrome.

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Neck dissection: classification and nomenclature

Marcos Brasilino de Carvalho, Abrão Rapoport
Head and Neck Service of the Heliopolis Complex. São Paulo, Brazil

Neck dissection is a surgery whose primary objective is the control of the regional lymphatic metastasis of primary cancer in the region of the head and neck. The most important historical reference comes from CRILE (**J Am Med Assoc 47**:1780-88, 1906) who propose the same approach for cancer of the head and neck region as that proposed by Halstead for breast cancer, that is, the primary lesion should be removed together with the local lymph nodes. This surgery is known even nowadays as radical neck dissection in analogy with radical mastectomy which includes removal of a breast with the tumor and the local lymph nodes.

Taking the surgery of Crile as a reference, many variations have been proposed as much to reduce the morbidity (through reduction of the number of non-lymphatic structures removed) as to change neck dissection into minor surgery (by selecting some lymphatic chains to be removed). In this direction the papers of SUAREZ (**Rev Otorinolaringol 23**:93-99, 1963), BOCCA (**J Laryngol 80**:831-38,1966) e JESSE, BALLANTYNE & and LARSON (**Am J Surg 136**:516-19, 1978) and BALLANTYNE (**Curr Probl Cancer 9**:3-34, 1985) are fundamental. The first two excised the same lymphatic chains as traditional dissection but preserved the submandibular gland, the sternocleidomastoid muscle, the internal jugular vein and the accessory spinal nerve. This surgery was called functional cervical dissection. BALLANTYNE also spared those non-lymphatic structures but his surgery did not extend to the inferior 2/3 of the spinal nerve chain nor to the external third of the supraclavicular region. This surgery received the name of modified neck dissection. LINGEMAN and colleagues (**Ann Otol 86**:737-44, 1977) describe a technique of neck dissection similar to that of SUAREZ and that of BOCCA but they call it conservative neck dissection. This technique contrasts itself with the so-called radical neck dissection. The term radical has been employed in variable ways by various authors; ranging from a synonym for surgery that removes all the neoplasia (as opposed to the palliative) to the idea of total, or complete (as opposed to partial or selective). Because it makes comprehension of this classification more complicated, the word radical should be avoided when designating a determined type of surgery.

The classification of different types of neck dissection has recently deserved the attention of authors responsible for important registration of clinical data, but they have not arrived at a consensus mainly because they propose that the denomination of the surgery include too much detail as to which structures are conserved or not (BYERS: **Am J Surg 150**:215-22, 1985: O'BRIEN and col.: **Am J Surg 153**:310-16, 1987; SUEN & GOEPFERT, 9:75-77, 1987; ROBBINS and col.: **Arch Otolaryngol/Head & Neck Surg 117**:601-05, 1991).

A fundamental rule by which a classification should be adopted is that it be based on logical principals and be easily understood. With respect to neck dissection the most reasonable approach would be to use as a point of reference the lymphatic and non-lymphatic structures involved in the surgery. In this way, with respect to the removed lymphatic chains, the dissection would be complete (or total) or partial (or selective). The partial dissection have been classified according with regard to the included chains, and has not been a source of controversy. With regard to non-lymphatic elements, whether conserved or not, in the denomination of complete or partial cervical dissection the structures that were spared would be mentioned, for ex.: "complete neck dissection with conservation of the sternocleidomastoid muscle and the accessory spinal nerve"; "complete bilateral neck dissection with conservation of the right internal jugular vein and the accessory spinal nerves".

The qualifying terms *conservative, functional, classic, modified* and *radical* should be abandoned, as their usage demands an accompanying explanation as to the intended meaning interpreted by the author, which makes standardization difficult.

Finally, some words about the term "lymphadenectomy". Under this denomination the authors have referred to the smallest surgery possible on the lymphatic system which is the extraction of one lymph node. Even today we can find references in the Index Medicus to lymphadenopathy and to lymphadenectomy. The Nomina Anatomica of 1895 (Basileia) substituted the Greek term ganglion (which means gland) for the denomination of lymph gland. In 1935, in Jena the Nomina Anatomica definitively adopted the term lymph node as the most appropriate and as one of almost unanimous acceptance among different authors.

Inexplicably the idea of a lymph gland persists in the terminology related to surgery and lymph node pathology . The expressions lymph*aden*itis, lymph*aden*ectomy and lymph*aden*opathy are commonly seen in scientific publications. Everyone knows that the composition element *aden* is from the original Greek word aden which means gland, and from there we have adenoma and adenocarcinoma to designate benign and malignant tumors derived from the glandular tissue. Therefore, if we have abandoned the expression lymph gland and prefer the term lymph node, then for etymological coherence we should use the terms lymphonoditis, lymphonodopathy and lymphonodectomy when referring to, respectively, an inflammation, a pathology, and lymph node surgery.