symptoms persisted with purulent expectoration, and a repeat spu-
tum culture was again positive for E. coli that showed intermediate
sensitivity to piperacillin–tazobactam, so antibiotic therapy was
switched to intravenous meropenem. The patient finally showed
satisfactory progress, and after completing the intravenous treat-
ment regimen, he was discharged with subsequent follow-up by
the respiratory medicine department.

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Chylothorax in Adults. Characteristics of 17
Patients and a Review of the Literature

Quilotórax en adultos. Revisión de la literatura a partir de una
serie de 17 casos

To the Editor,

Chylothorax (CTX) is an uncommon disease caused by extrava-
sion of lymph fluid to the pleural cavity. Diagnosis is based on the
detection of triglycerides or chylomicrons in pleural fluid. Triglyc-
eride concentrations higher than 110 mg/dl or the presence of
chylomicrons are indicative of CTX.1 Etiology is defined as traum-
atic or non-traumatic, the most common causes of which are
iatrogenesis or malignancy.2 Treatment can be conservative in the
case of low-output CTX, or surgery may be necessary if disease is
high-output or refractory.3 Prognosis depends on the underlying
cause.

We reviewed 1600 cases of pleural effusion seen in our hospital
between January 2010 and December 2013, and selected patients
with triglyceride levels higher than 110 mg/dl. We analyzed the
etiology, clinical manifestations, diagnosis, and treatment of these
cases, and reviewed the literature. Seventeen patients were found
to have CTX (1.1%). Mean age was 64 (36–81) years, and 8 were
men. The most common symptoms were dyspnea (7 cases), cough
(3), ascites (3), and anorexia, asthenia and weight loss (4). Pleur-
el effusion was right-sided in 8, left-sided in 2, and bilateral in 7.
Pleural fluid obtained from 16 patients was milky in appearance
and serous in 1; 12 were exudate, and 4 were transudate (data
missing in 1 case). Etiology was non-traumatic in 13 cases, 11 of
which were due to malignant disease, mainly lymphoma (n=5).
One case was due to lymphangioma, and another was idiopathic.
Of the remaining 4, 3 were caused by surgery and 1 by childbirth.
With regard to treatment (Fig. 1), nutritional support was admin-
istered, with lipid restriction and medium-chain triglyceride diet
in all patients, except 2 (due to death and spontaneous resolu-
tion). Pleural drainage was applied in 12 patients, and 5 underwent
pleurodesis. Three required surgery (thoracic duct ligation), and 2
lymphography. Octreotide was administered in 3 cases, but results
were unsatisfactory: 1 patient developed a skin rash, so it was
discontinued, and other measures were required in the other 2
due to persistent effusion. Eight of the 17 cases died, 7 due to
malignancy.

CTX is a rare entity, mainly caused by rupture of the thoracic duct
and accumulation of chyle in the pleural cavity, or leakage from
the peritoneum. Etiology of CTX is classified as traumatic or non-
traumatic, the former being the most common, accounting for up
to 50% of cases.4,5 In our study, the predominant etiology was non-
traumatic. Traumatic etiologies can be subcategorized as iatrogenic
(surgical acts such as esophagostomy) and non-iatrogenic (trauma-
tism, childbirth labor, etc.).6 Neoplastic processes, predominantly
lymphoma, are the most common non-traumatic cause. The most
common symptoms are cough, dyspnea, and chest pain. Fever is
less common, since chyle is a non-inflammatory fluid.7 Our series
notably included 4 cases of anorexia, asthenia and weight loss,
most likely due to the high rate of malignant diseases. Diagno-
sis is based on analysis of pleural fluid, which has been defined
as milky or opalescent, but serous and bloody serous specimens
have been described, and are even predominant in some series.1
In biochemical terms, this is a lymphocytic exudate with low LDH
levels, although previous studies have described transudates in 32%
of cases, mostly due to hepatic cirrhosis, nephrotic syndrome,
and heart failure, among others.5 In our series, 4 were transudates
due to malignancy. Most CTX are unilateral.7 In our series, 7 were bilat-
eral and 10 were unilateral. CT must be performed if the cause is
unknown. Other techniques for locating the lesion are lympho-
graphy and lymphoscintigraphy, but these techniques may cause
adverse effects, and are of most benefit in patients in whom sur-
gical repair is planned. Treatment of CTX will vary depending on
severity and refractoriness. In low-output effusions, a lipid-free diet
with medium-chain fatty acids is recommended. In more severe
cases, fasting with total parenteral nutrition and pleural drainage
is recommended. Since 1990, these conservative medical treatment
modalities have been combined with somatostatin or its synthetic

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analogue, octreotide, an effective strategy with a response rate of up to 80%, mainly in post-surgical CTx. These products are thought to act by reducing gastrointestinal blood flow, inhibiting gut motility and reducing lymphatic flow, leading to a reduction in the intestinal production of chyle. In our series, however, this treatment was ineffective or had to be discontinued due to adverse effects in the 3 patients who received it, although we must point out that none of these cases were post-surgical. Pleurodesis is a good option in persistent cases. Surgery is necessary in refractory or high-output CTx. Thoracic duct ligation has been shown to be effective 67%–100% of the time, but patients who are not candidates for this intervention may receive a pleuropertoneal or pleurovesical shunt or thoracic duct embolization, although outcomes are variable. In our series, 15 patients received nutritional support, and 12 required an endo-thoracic tube. Three thoracic duct ligations and 2 lymphographies were performed, with CTx resolution in all cases.

In conclusion, CTx is a rare entity, diagnosed by the detection of chylocromics or triglycerides >110 mg/dl in the pleural fluid. Surgical interventions and lymphoproliferative diseases are the main causes. In low-output CTx, nutritional support and repeated thoracocentesis are generally effective, but cases of persistent or high-output CTx may require invasive techniques.

**References**


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