# ORO-PHARYNGEAL SYMPTOMS AFTER ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY. HOW CONCERNED SHOULD WE BE?

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## Abstract

**Introduction:** Endoscopic retrograde cholangiopancreatography (ERCP) has always been recognized as the digestive endoscopy procedure most frequently associated with adverse events and complications. Acute pancreatitis, bleeding, perforations and infections are the usual cited procedural adverse events. The aim of our study was to evaluate whether ERCP is prone to post-procedural oro-pharyngeal symptoms compared to usual gastroscopy.

**Materials and methods:** The prospective study enrolled 155 patients of whom 90 underwent ERCP for choledocholithiasis and 65 were examined by conventional front view gastroscopy in a tertiary unit of gastroenterology and hepatology, between January and July 2017. The presence of immediate post-procedural and of 48 hour oro-pharyngeal pain and/or discomfort was assessed. **Results and discussion:** No significant differences were recorded as to the presence of oro-pharyngeal symptoms in the two groups. Nevertheless, over 38% of the patients did experience such symptoms immediately after endoscopy, while in up to more than 14% of them the symptoms did not disappear in the first 48 hours. **Conclusions:** Oro-pharyngeal symptoms, a reality of digestive endoscopy procedures, should be considered as precocious adverse events associated with upper digestive tract endoscopy. Even if complete resolution of symptoms is expected to occur in most patients after 24 hours, there are cases when prolonged discomfort could happen.

Keywords: endoscopic retrograde cholangiopancreatography, adverse events, complications, odinophagia.

## 1. INTRODUCTION

Endoscopic retrograde cholangiopancreatography (ERCP) has been first introduced in 1968, as an elaborated endoscopic procedure useful in the diagnosis and management of a variety of hepato-bilio-pancreatic, both acute and chronic, conditions. Towards the last decade, the role of ERCP has evolved from a diagnostic to a therapeutic interventional one, due to the emergence of other imaging modalities, among which magnetic resonance imaging cholangiopancreatography (MRCP) and endoscopic ultrasound (EUS) should be mentioned; however, prompt recognition and appropriate management of potential adverse events are critical for reducing the morbidity and mortality associated with the procedure [1].

The most frequent complications of therapeutic ERCP are pancreatitis, cholangitis, hemorrhage, and duodenal perforation. Post–endoscopic retrograde cholangiopancreatography pancreatitis (PEP) is the most frequently encountered complication of ERCP and, in most of the cases, it is the main underlying reason behind ERCP-related lawsuits and litigation. Patients at high risk for PEP include young women with abdominal pain, normal liver tests, and unremarkable imaging, while procedure-related factors include traumatic and persistent cannulation attempts, multiple injections of the pancreatic duct, pancreatic sphincterotomy, and, possibly, use of precut sphincterotomy [1]. Aggressive hydration, use of rectal indomethacin, and prophylactic pancreatic stenting do contribute to the minimization of such adverse event-related risk and, in all cases, are considered to narrow the severity of PEP [1,2]. Although described by this beneficial impact, such measures do not outrule a careful patient selection and technique [2].

Furthermore, there are several rare, unusual and non-specific adverse events related to ERCP, among which electrosurgical hazards, extravasations of contrast medium in the duodenal wall, portal, arterial or lymphatic opacification, duodenal pneumatosis, portal gas embolism, impacted devices and rare infectious
or perforative complications. These unusual adverse events, which may be difficult to manage, can be associated with significant morbidity and mortality [3,4]. Such complications occurred in 25 of 2,347 cases; in a recent prospective study, 6 of them were cardiopulmonary events, which were fatal in 3 patients [5].

Similar rare complication rates were also demonstrated in two Italian prospective studies including almost 5,000 patients undergoing ERCP, where such miscellaneous complications were observed in 0.4 to 0.5% of the patients, more than one-half of which were cardiopulmonary [6,7]. Nevertheless, only isolated studies refer to odynophagia or similar oro-pharyngeal symptoms as possible adverse events associated with ERCP [8-10]. Such symptoms could be expected in the setting of therapeutic ERCP mainly because of the larger diameter of the duodenoscope, position of the patient and possible longer time span of the procedure.

The aim of our study was to assess whether oro-pharyngeal symptoms, like dysphagia, odynophagia or only oro-pharyngeal discomfort, could be associated with upper digestive tract endoscopy and secondary symptoms, whether such manifestations are more frequently associated with ERCP.

2. MATERIALS AND METHODS

Patients

We performed a prospective study, including 155 patients in whom diagnostic front view upper digestive tract endoscopy (65 patients - control group) and ERCP (90 patients - study group) were indicated. The study group consisted of patients with the same diagnosis as indication for ERCP - choledocholithiasis. All patients were evaluated in the Institute of Gastroenterology and Hepatology, at the „St. Spiridon” Emergency Hospital of Iasi, between January and July 2017. Beyond proper endoscopy indication, inclusion criteria for both groups were: age over 18 years, clinically normal cognitive status and possible 48 hour follow-up. Exclusion criteria: presence of any oro-pharyngeal symptom prior to the procedure or any ongoing diagnosed acute or chronic oro-pharyngeal condition, history of oro-pharyngeal diseases, smoking habits, clinically impaired mental status, prolonged procedure time (over 1 hour).

Table 1. Distribution of patients on gender in study and control groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Control group</th>
<th>Study group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>55.6%</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>55.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>86</td>
<td>55.5%</td>
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</tr>
<tr>
<td>Male</td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>44.4%</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>44.6%</td>
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<tr>
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<td>69</td>
<td>44.5%</td>
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<tr>
<td>Total</td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>90</td>
<td>100.0%</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>100.0%</td>
<td></td>
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<tr>
<td></td>
<td>155</td>
<td>100.0%</td>
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</tbody>
</table>

As shown in Table 1, the gender distribution of patients is well balanced, with no statistically significant differences. In both groups, a slightly larger number of female patients was registered, as observed throughout all endoscopy procedures in the unit.

Permission was granted for the study by the local ethics committee, and all research activities were conducted under the values of the Declaration of Helsinki. Written informed consent was obtained before enrollment in all patients.

Oro-pharyngeal symptoms assessment

All patients were screened for oro-pharyngeal symptoms prior to the endoscopy, 1 hour after the procedure and 48 hours after the investigation. All patients received local anesthesia with Xiline spray, 3-5 applications in the oral cavity, and a water-based lubrication gel was applied on the endoscope tip before the procedure.

Difficulty in swallowing (dysphagia), painful swallowing (odyndphagia), pharyngeal foreign-body sensation, globus, dysphonia, and pain in the oral cavity were assessed. Data was collected by a single investigator.

Statistical analysis

All statistical analyses were performed using the SPSS 20.0 software. Database of patients was built up in MS Excel 2007. Prior to statistical analysis, case distribution in both groups was verified by the Kolmogorov-Smirnov repartition
test. Variables in the present study were assessed by frequencies (categorical variables) and descriptive statistics (qualitative variables).

Patient characteristics are reported as numeric (%). 95% confidence intervals were used. A p value of <0.05 was considered significant. Frequency distribution differences were assessed with the square-Chi test.

3. RESULTS

Between January and July 2017, all patients who met the inclusion criteria were monitored prior to and throughout 48 hours after the procedure. No patient was excluded from the study in the follow-up period. The presence of symptoms between the two groups was compared 1 hour and 48 hours after upper digestive tract endoscopy procedures.

As shown in Table 2, oro-pharyngeal symptoms occurred in a significant ratio of patients in both groups 1 hour after endoscopy – almost 40% of them having received upper digestive tract endoscopic procedures did experience such symptoms despite local anesthesia. Although not statistically significant, the percentage of symptomatic patients was slightly higher (40.0%, \( n=26 \) versus 37.8%, \( n=34 \)) among those who underwent duodenoscopy and therapeutic ERCP (Pearson Square-Chi=0.079, \( p=0.779 \)). Worth mentioning is that almost no patient experienced the studied symptoms immediately after endoscopy, in all cases the symptoms occurring approximately 1 hour after the procedures.

On the other hand, as expected, the number of patients who experienced prolonged, 48 hours symptoms was considerably smaller, as shown in Table 3. The overall ratio of patients experiencing oro-pharyngeal symptoms 48 hours after endoscopy was almost 15% (\( n=23 \)). Interestingly, when comparing the results of the study group and controls, the patients who underwent therapeutic ERCP tended not to be prone to prolonged symptoms, when compared to front-view upper digestive tract endoscopy (12.3%, \( n=8 \) in the control group versus 16.7%, \( n=15 \) in the study group). Nevertheless, such small difference was not statistically significant (Pearson Square-Chi=0.567, \( p=0.451 \)).

### Table 2. Presence of oro-pharyngeal symptoms 1 hour after conventional front view gastroscopy (control group) and duodenoscopy with therapeutic ERCP (study group)

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Study group</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Absent</td>
<td>56</td>
<td>39</td>
<td>95</td>
</tr>
<tr>
<td>Present</td>
<td>34</td>
<td>26</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>90</strong></td>
<td><strong>65</strong></td>
<td><strong>155</strong></td>
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</table>

As stated, although obvious differences were recorded between the two groups, none of them proved to be statistically significant. Nevertheless, clearly oro-pharyngeal symptoms do occur after upper digestive tract endoscopy procedures in a significant number of patients, as compared to other stated adverse events.

### Table 3. Persistence of oro-pharyngeal symptoms 48 hours after conventional front view gastroscopy (control group) and duodenoscopy with therapeutic ERCP (study group)

<table>
<thead>
<tr>
<th></th>
<th>Control group</th>
<th>Study group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>75</td>
<td>57</td>
<td>132</td>
</tr>
<tr>
<td>Present</td>
<td>15</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>90</strong></td>
<td><strong>65</strong></td>
<td><strong>155</strong></td>
</tr>
</tbody>
</table>

4. DISCUSSIONS

Pain is with no doubt a constant adverse event after digestive endoscopy, independently on the procedure type. Upper digestive tract procedures involving passage of the endoscope through the oral cavity and pharynx may involve local pain, due to transient inflammation secondary to friction between the mucosa and the endoscope. Therefore, oro-pharyngeal pain is considered...
one of the main adverse events of endoscopy
[10], nevertheless some authors would consider
it an unusual finding after diagnostic front-view
upper digestive tract endoscopy [12]. Occurrence
of such symptoms after endoscopy should not be
confused with odynophagia and/or dysphagia
as underlying symptoms of preexistent conditions
requiring upper digestive tract endoscopy like,
among others, gastroesophageal reflux disease,
infectious esofagitis (candidiasis or herpes
simplex esophagitis), corrosive intoxications or
foreign body impaction.

However, depending on the type of procedure,
several endoscopic procedures are mentioned in
the literature as potentially involving more likely
oro-pharyngeal pain. Such procedures are either
the ones using overtube devices [9] or multiple
passes of the scope "back and forward", as in
balloon-assisted enteroscopy procedures [8]. In
this context, ERCP should not involve additional
risk for oro-pharyngeal symptoms than
conventional gastroscopy, as a stable position of
the duodenoscope with minimal push or pull
maneuvers is the key technical quality element
of ERCP. Such aspect is also supported by the
results presented in our study, according to
which oro-pharyngeal symptoms were not
significantly more frequent after ERCP, compared
to conventional gastroscopy.

5. CONCLUSIONS

Adverse events of endoscopy procedures
should be assessed in the context of the entire
clinical and social outcome. A successful
procedure may bring along some modest or even
moderate adverse events and, despite such
events, it is preferable to a failed or canceled
procedure, obviously without any adverse
events.

Even if both therapeutic ERCP and diagnostic
front-view upper digestive tract endoscopy are
characterized by several more serious adverse
events and complications, given their relatively
high frequency, the oro-pharyngeal symptoms
should be a point of interest for the endoscopist,
especially in what informed consent obtaining is
concerned. Consequently, the informed consent
documents should also include such clinical
conditions as, statistically, a patient is clearly
more likely to develop these symptoms and not
some other more serious complications. Moreover,
it is to be acknowledged that, independently on
their magnitude, such symptoms occur despite
pre-procedural local anesthesia, scope lubrication
and short procedure periods.

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