ABSTRACT
The problem of prophylaxis of incompetence of bronchial stump and bronchial fistula is many sided. Notwithstanding the development of new technologies, perfection of surgical technique, its frequency still remains on high level that persistently requests the search of new ways for resolving this problem, which preserved its topicality till nowadays.

We have found that: The most efficiency of BFS is achieved during treatment of bronchial fistulas with diameter up to 3 mm and with effectiveness at 83.2% patients after right-side PE and at 92.3% patients after left-side PE.

In case of BFS with diameter more than 3 mm the number of satisfactory results of BFS reaches only 33.3%. but, it is necessary to mention that among patients with BFS sized over 3 mm after left-side PE the effectiveness of BFS significantly exceeds as general index (50.0% against 33.3%) so after right-side PE (50.0% against 25.0%).

INTRODUCTION
The problem of prophylaxis of incompetence of bronchial stump and bronchial fistula is many sided. Notwithstanding the development of new technologies, perfection of surgical technique, its frequency still remains on high level that persistently requests the search of new ways for resolving this problem, which preserved its topicality till nowadays.

The big break-through in thoracic surgery connected with endoscopic bronchoscopy belongs to foreign researchers. Thus, C.M. Shulutko et al., 2006; Tulloch-Reid M. et al., 2006).

In its formation phase the temporary endobronchial occlusion was made with usage of balloons similar to Fogarty catheter (V.P. Molodsova, 1997; V.A. Gerasin et al., 2003; Sprung J., 1994).

The present-day priority in development of BFS’s occlusive bronchoscopy belongs to foreign researchers. Thus, C.M. Sivrikoz et al. (2007) inform about efficiency of application of the endovascular metallic ring-shaped coil in combination with fibrin glue for BFS closing.

A.M. Shulutko et al. (2006) describe the possibilities of BFS closure by using of so-called device Amplatzer, that is generally used for transcatheter elimination of atrial septal defects.

A.V. Levin et al. (2007) analyze the results of BFS closure at 78 patients by application of endoscopic endobronchial implantation of specially developed valve. The present treatment allowed in 91.7% cases to avoid an open surgical operation.

At BFS closure some researchers use the special stents, which were made of different plastic materials (Kutlu C. et al., 2009).

BFS has facilitated the application of different glue compositions, which can be precisely spread on fistula’s region with use of ordinary catheter. For this purpose, at present time, glue compositions on the basis of fibrin are generally used, “Histoacyrle”, “Tissecol”, “Super Glue” (butyl- or methyl-2-cyanoacrylate), “Sulfcyrlate”.

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BRONCHOFIBEROSCOPY (FIBER-OPTIC BRONCHOSCOPY) IN TREATMENT OF BRONCHIAL FISTULAS AFTER THE PNEUMONECTOMY

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MATERIALS AND METHODS
In comparative aspect with surgical methods of the bronchial stump’s coverage here is presented the own experience and results in applying of bronchoscopic methods for treatment of incompetence and fistulas of the main bronchial tube after pneumonectomy.

Bronchofibrsocopy (BFS) had been made at 43 patients. Standard preoperative preparation included antiphlogistic, desensitizing, broncholytic and mucolytic therapies. The appearance of thorascopic excision, occlusion or dilatation deserves the particular interest and attention.

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stump had not been made because of their low efficaciousness and in most groundlessness.

RESULTS AND DISCUSSION

In the Table №1 there are analyzed the results of accomplishment of the bronchoscopic elimination of bronchopleural fistula (BPF) depending on affected side. As can be seen from the Table the overall (depending on side of affection) efficiency of using the BPF’s bronchoscopic elimination came to only 62.8%, lethality was reported at 5 (11.0%) patients. The same low percentage of method’s effectiveness was reported at analysis depending on side of affection. Thus, satisfactory results of BPF’s treatment with application of BFS among patients after PE on the right were reported at 58.4% of patients and at 68.4% of patients after PE on the left.

<table>
<thead>
<tr>
<th>Side</th>
<th>Quantity</th>
<th>Effectiveness</th>
<th>Inefficiency</th>
<th>Lethality</th>
</tr>
</thead>
<tbody>
<tr>
<td>All fistulas</td>
<td>43</td>
<td>0.394</td>
<td>27</td>
<td>0.628</td>
</tr>
<tr>
<td>Fistulas on the left</td>
<td>19</td>
<td>0.442</td>
<td>13</td>
<td>0.684</td>
</tr>
<tr>
<td>Fistulas of the right</td>
<td>24</td>
<td>0.558</td>
<td>14</td>
<td>0.583</td>
</tr>
</tbody>
</table>

Thus, the received summary data on application of BFS is noticeably inferior to a such even at application of temporizing tactics (62.8% against 67.7% accordingly). We do share the most of authors’ point of view on that during realization of medicinal BFS initially there is a need for selective approach depending on defect’s size. In this concern, we had conducted the analysis of results of the medicinal BFS application depending on bronchial fistula’s diameter (Tables №2 and №3).

The most effectiveness from BFS is achieved when bronchial fistulas with diameter up to 3 mm are treated. For instance, the overall quantity of all positive results amounts up to 88.0% (23 from 25 patients), and among patients after left-side PE up to 92.3% (12 patients from 13). The major number of unsatisfactory results relates on account of patients who had BPF with diameter more than 3 mm (Table №3). Thus, the quantity of satisfactory results achieves only 33.3%. But, it is necessary to mention, that among patients who have BPF with diameter larger than 3 mm after the left-side PE, the BFS efficiency significantly exceeds as general index (50.0% against 33.3%) so after right-side PE (50.0% against 25.0%).

Consequently, the lethality among patients who have BPF with diameter up to 3 mm is nearly 2 times less among patients who have BPF with diameter over 3 mm (8.0% against 16.7%).

As our researches had revealed, the most fundamental moment is the choice of surgical operation tactics with obvious preference to active thoracotomy coupled with obligatory reinforcement of the bronchial stump. Application of the bronchoscopic methods of treatment at incompleteness of bronchial stump with diameter up to 3 mm on account of high effectiveness (88%) can be used in capacity of the main means during BFS treatment. At the same time selectivity regarding the patients after left-side PE that was complicated by BPF with diameter more than 3 mm also deserves an attention.

Having for today a number of developed protocols and algorithms of the BPF treatment it would be inexpedient to duplicate or overlap them and make slight changes. We share the standpoint of leading thoracic surgeons on that even universally developed algorithm cannot take into account and evaluate all the factors that affect on outcome (result) and consequently on surgical tactics. In this regard we suggest our own view of the problem in a mostly reductive variant, but which is by our opinion convenient in practical application (Pic. 2).
In that way, one of the main orientation points at choosing of surgical tactics and means is determined by the size of a fistula’s whole. In case of fistula sized up to 3 mm the priority must be given to bronchoscopic methods of treatment, if it is inefficient the open surgical operation is made. In case of fistula with diameter over 3 mm after right-side PE the only effective method is active surgical tactics with application of transmural onomentoplasty or transthoracal muscle - aponeurotic plastic. Exclusion may contain the patients after left-side PE with complicated BFS that has diameter more than 3 mm, whom on the first phase was recommended the BFS obstruction with TS, and at ineffectiveness of open operation fulfillment.

CONCLUSIONS

The most efficiency of BFS is achieved during treatment of bronchial fistulas with diameter up to 3 mm and with effectiveness at 83.2% patients after right-side PE and at 92.3% patients after left-side PE. In case of BFS with diameter more than 3 mm the number of satisfactory results of BFS reaches only 33.3%, but, it is necessary to mention that among patients with BFS sized over 3 mm after left-side PE the effectiveness of BFS significantly exceeds as general index (50.0% against 33.3%) so after right-side PE (50.0% against 25.0%).

REFERENCES


