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**ABSTRACT**

of the dissertation for the degree of Doctor of Philosophy

**POSTOPERATIVE CHANGES IN THE ABDOMINAL  
CAVITY AND THE SMALL PELVIS IN WOMEN  
AFTER CESAREAN SECTION AND THEIR AFFECT  
ON THE QUALITY OF LIFE**

Speciality: 3215.01 – Obstetrics and gynecology

Field of science: Medicine

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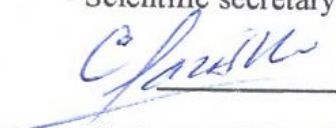
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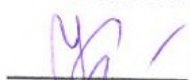
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## GENERAL REVIEW OF THE WORK

**Relevance of the topic.** Caesarean section these days has become the most frequent surgical intervention, which is performed in obstetric and gynecological practice. In the United States, from 1996 to 2009, the incidence of caesarean section increased from 20.7% to 32.9%<sup>1</sup>. Approximately the same growth during the designated time period (about 12%) is observed in Azerbaijan, although, in general, the indicators are an order of magnitude lower: 19.3% for 2011<sup>2</sup>. However, there are also countries where abdominal delivery of the fetus accounts for half of all births<sup>3</sup>.

Nowadays, a high scientific attention is paid to the reasons for the increase in the frequency of cesarean section<sup>4,5</sup>, and this is done, first of all, in order to limit the cases of unjustified carrying out of this operation. So, WHO claims that exceeding 15% of the threshold does not affect the quality of perinatal indicators<sup>6,7</sup>. It should be noted that the arguments “for” and “against” are considered in most cases, namely, from the perspective of perinatal obstetrics<sup>8</sup>. In addition, the subject of discussion is the technique of performing the opera-

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<sup>1</sup>*Tulandi, T.* Classification of intra-abdominal adhesions after cesarean delivery / T.Tulandi, D.Lyell // *Gynecol. Surg.*, – 2013. 10 (1), – p. 25-29.

<sup>2</sup>*Azərbaycan Respublikasının Səhiyyə Nazirliyi. Doğum evlərində (şöbələrində) doğuşayardım işinin təşkili üzrə metodik təlimat.* Bakı, – 2013.

<sup>3</sup>*Məmmədov, C.* Qeysəriyyə kəsiyi əməliyyatı üzrə klinik protokol / C.Məmmədov, F.Əliyeva, F.Qurbanova [et al.], – Bakı, – 2013. – s. 24.

<sup>4</sup>*Савельева, Г.М.* Кесарево сечение и его роль в современном акушерстве // *Акушерство и гинекология*, – 2008. № 3, – с. 10-14.

<sup>5</sup>*Dahlke, J.D.* Evidence-based surgery for cesarean delivery: an updated systematic review / J.D.Dahlke, H.Mendez-Figueroa, D.J.Rouse [et al.] // *Am. J. Obstet. Gynecol.*, – 2013. 209 (4), – p. 294-306.

<sup>6</sup>*Атласов, В.О.* Современные технологии абдоминального родоразрешения в профилактике перинатальной смертности и заболеваемости рожениц // *Журнал акушерства и женских болезней*, – 2008. т. LVII, № 1, – с. 80-85.

<sup>7</sup>*Серов, В.Н.* Кесарево сечение в системе перинатального акушерства // *Русский медицинский журнал*, – 2004. т. 12, № 1, – с. 3-5.

<sup>8</sup>*Kulas, T.* New Views on Cesarean Section, its Possible Complications and Long-Term Consequences for Children’s Health / T.Kulas, D.Bursac, Z.Zegarac [et al.] // *Med. Arh.*, – 2013. 67 (6), – p. 460-463.

tion<sup>9,10,11</sup>, the immediate postoperative complications and the state of the uterine scar.

Of course, the technique of performing a caesarean section is an important topic. There are many reasons why this operation is so popular among obstetricians - gynecologists, but the most objective among them will be the fact that in recent years its technique has been significantly improved: it requires little time, bleeding and endometritis with all the ensuing consequences are minimized, and the strength of the scar allows you to successfully question the postulate of the "danger of natural childbirth during subsequent pregnancies"<sup>12,13</sup>.

On the other hand, as it were, it is forgotten that a caesarean section is carried out mainly to conditionally healthy women outside of pregnancy and childbirth. Accordingly, the questions about what direct changes take place in their abdominal cavity, how they affect the quality of their life, and what create problems if re-intervention is necessary remain poorly understood<sup>14</sup>.

It is believed that in 24.4-73.0% of cases after the first caesarean

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<sup>9</sup>*Kulas, T.* New Views on Cesarean Section, its Possible Complications and Long-Term Consequences for Children's Health / T.Kulas, D.Bursac, Z.Zegarac [et al.] // *Med. Arh.*, – 2013. 67 (6), – p. 460-463.

<sup>10</sup>*Riggs, J.* Cesarean section as a risk factor for the development of adenomyosis uteri / J.Riggs, E.Lim, D.Liang [et al.] // *J. Reprod. Med.*, – 2014. 59 (1-2), – p. 20-24.

<sup>11</sup>*Shi, Z.* Adhesion formation after previous caesarean section – a meta-analysis and systematic review / Z.Shi, L.Ma, Y.Yang [et al.] // *BJOG*, – 2011. 118 (4), – p. 410-422.

<sup>12</sup>*Краснопольский, В.И.* Альтернативное родоразрешение беременных с оперированной маткой / В.И.Краснопольский, Л.С.Логутова, Н.Д.Галимов [и др.] // *Журнал акушерства и женских болезней.* – 2003. т. Lii, в. 1, – с. 21-25.

<sup>13</sup>*Tripathi, J.* Vaginal birth after one caesarean section: analysis of indicators of success. / J.Tripathi, H.Doshi, P.Kotdawala [et al.] // *J. Indian Med. Assoc.*, – 2006. 104 (3), – p. 113-115.

<sup>14</sup>*Riggs, J.* Cesarean section as a risk factor for the development of adenomyosis uteri / J.Riggs, E.Lim, D.Liang [et al.] // *J. Reprod. Med.*, – 2014. 59 (1-2), – p. 20-24.

section, an adhesive process develops<sup>15,16</sup>. At the same time, there is no consensus about the factors that determine their formation. In addition, in the few studies devoted to changes in the intracavitary anatomy, various scoring systems are used to determine the severity of the adhesive process. It has also not been clarified whether there is a relationship between the severity of the described consequences of cesarean section as a surgical intervention and various clinical manifestations, be it pain, dysuric phenomena, fertility disorders, and others<sup>17, 18</sup>.

Thus, the study of postoperative changes in the anatomy of the abdominal cavity after cesarean section, their manifestations, as well as the impact on the quality of life of patients and the peculiarity of surgical interventions subsequently on the small pelvis is of scientific and practical interest.

**Object of study.** Archival materials of women with a diagnosis of a scar on the uterus who were delivered by caesarean section (retrospective study); women who underwent the first or repeated caesarean section (prospective study).

**The aim of this study** is to reduce maternal morbidity after caesarean section and optimize subsequent interventions by reducing the formation and development of adhesions in the abdominal cavity.

### **Research objectives:**

1. Determine the frequency of occurrence of adhesions after cesarean section;

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<sup>15</sup>Tulandi, T. Classification of intra-abdominal adhesions after cesarean delivery / T.Tulandi, D.Lyell // Gynecol. Surg., – 2013. 10 (1), – p. 25-29.

<sup>16</sup>Shi, Z. Adhesion formation after previous caesarean section – a meta-analysis and systematic review / Z.Shi, L.Ma, Y.Yang [et al.] // BJOG, – 2011. 118 (4), – p. 410-422.

<sup>17</sup>Riggs, J. Cesarean section as a risk factor for the development of adenomyosis uteri / J.Riggs, E.Lim, D.Liang [et al.] // J. Reprod. Med., – 2014. 59 (1-2), – p. 20-24.

<sup>18</sup>Lyell, D. Peritoneal closure at primary cesarean delivery and adhesions / D.Lyell, A.Caughey, E.Hu [et al.] // Obstet. Gynecol., – 2005. 106 (2), – p. 275-280.

2. To identify the risk factors leading to the formation of adhesions after cesarean section;
3. To establish the nature of changes in the anatomy of the pelvic cavity and the organs located there, to determine the severity of the adhesive process after the cesarean section and to develop a classification for the assessment of the adhesive process;
4. To assess the quality of life in patients after a caesarean section.

**Research methods.** Analysis of archival materials, methods of clinical research, diagnostic laparoscopy, therapeutic laparoscopy, laparotomy, photometry, video recording, questioning (SF-36).

**The main provisions for the defense:**

1. Adhesion process after cesarean section is a fairly common phenomenon that can affect the deterioration of the quality of life in the future.
2. A history of cesarean section may become a risk factor when performing surgery on the pelvic organs.
3. Formation of adhesions after cesarean section, first of all, is associated with the peculiarities of its implementation.

**Scientific novelty of the research.** As a result of this work, for the first time in Azerbaijan, the degree of changes in the anatomy of the small pelvis in women after the caesarean section and the impact of these changes on their quality of life in the future will be determined.

**The practical significance of the results that were obtained:** the practical significance of this research work is to identify risk factors for violations of intra-abdominal anatomy after cesarean section, develop a special classification to assess the severity of the postoperative adhesive process, determine the most rational technique for performing cesarean sections and diagnosing the likelihood of anatomical changes based on clinical manifestations to select a rational access if surgical intervention is required in the future.

**Approbation of work.** The main provisions and results of the study were reported at: an international conference dedicated to the

90th anniversary of the birth of Naziya Musa kizi Shamsaddin (Baku, 2016), a conference dedicated to current approaches to some of the problem of obstetrics and gynecology in Azerbaijan (Baku, 2019), Proceedings of International Conference (Istanbul, 2019), X International scientific conference (New-York, 2019), 4 Uluslararası Koru gebelik doğum lohusalık kongresi (Bolu, 2020).

The work was approved at a meeting of the I Department of Obstetrics and Gynecology of the Azerbaijan Medical University (AMU) (10.26.2017, protocol No. 2), at a meeting of the approbation commission of the dissertation council D 03.011 at the AMU (protocol No. 1, 11.12.2017), at the scientific seminar of the Dissertation Council ED 2.06 at the AMU (protocol No. 1 of 03/02/2021).

**The name of the organization where the dissertation has been accomplished.** The work was carried out at the I Department of Obstetrics and Gynecology of the AMU, as well as at the Department of Obstetrics and Gynecology of the Clinical Medical Center (Baku).

**Implementation of research results into practice.** The results of the research have been introduced into the practice of the I Department of Obstetrics and Gynecology at the Azerbaijan Medical University, as well as in the Department of Obstetrics and Gynecology of the Clinical Medical Center. The developed classification is introduced into the educational process at the I Department of Obstetrics and Gynecology at the Azerbaijan Medical University.

**Publications.** On the topic of the dissertation work, 11 works have been published, of which 8 articles (2 of them abroad) and 3 theses (1 of them abroad).

**The structure and volume of the dissertation.** The dissertation consists of the following chapters: introduction (4 pages, 7432 symbols), literature review (29 pages, 56304 symbols), chapters describing materials and research methods (19 pages, 27174 symbols), clinical characteristics of the examined patients and quality of life of patients after caesarean section (51 pages, 58188 symbols), discussion of the results obtained (19 pages, 35436 symbols), findings (1 page,

1866 symbols), practical recommendations (1 page, 1185 symbols), literature index (25 pages) and applications (8 pages). The work is presented on 161 pages (190 640 symbols) of computer text, contains 38 tables, 10 charts and 5 figures. The bibliographic index includes 237 works.

## **MATERIALS AND METHODS**

The dissertation work was carried out on the basis of the Azerbaijan Medical University at the I Department of Obstetrics and Gynecology at the Clinical Medical Center in Baku.

The material of 134 own studies and 300 case histories and other archival materials of women diagnosed with a scar on the uterus who were delivered by caesarean section for the period of 2013-2015 was analyzed. The patients were divided into 3 groups: I - obstetric, II - gynecological, III - patients examined for quality of life.

The obstetric group, in turn, was subdivided into 3 subgroups:

1) The retrospective group - it included 300 patients who underwent 2 or more caesarean sections, the study of these patients was carried out through a thorough analysis of archival material and data obtained from operational journals.

2) Prospective group - it included 60 patients with a repeated caesarean section, operated directly by our team in the obstetrics department of the Clinical Medical Center in 2015. The assessment of the condition of the abdominal cavity in this group of patients was carried out directly during the repeated operation of the caesarean section, during which we took photographs of the abdominal cavity and the pelvic cavity for further analysis of the condition of the abdominal cavity and the pelvic cavity, as well as to assess and classify the adhesions we found.

3) The control group - it included 30 patients undergoing cesarean section for the first time, the purpose of creating this group was to compare and assess the condition of the abdominal cavity and pelvic cavity in women who underwent cesarean section with women who were first exposed to this operation.

II. The gynecological group included 44 patients - this group was recruited for the purpose of a more detailed study of the features of



the adhesions and analysis of the features of adhesions after cesarean section. We reviewed videos of 550 laparoscopic operations performed from 2013 to 2015 in the gynecology department of the 1st City Clinical Hospital in Baku. 44 (8.0%) of these patients had a history of one or more caesarean sections. In this group of patients, we used diagnostic laparoscopy, which, in case of detection of a disease and technical feasibility, immediately switched to therapeutic laparoscopy. This group included patients operated on for: tubal pregnancy, hysterectomy, ovarian formation, uterine perforation, myomectomy and suture malfunction, laparoscopic method, all operations were subject to video recording.

The age of women in this group varied between 17 and 57 years, the average age was  $34.6 \pm 1.47$  years.

III. Further, our goal was to study the quality of life in patients who underwent a cesarean section. for the subjective assessment of the long-term results of their treatment by patients, we conducted a survey and questionnaire survey of 100 patients, half of them were women who had undergone cesarean section, the other half were women after natural childbirth. The survey of patients was carried out using the SF-36 questionnaire, the choice of this tool for studying the quality of life in various fields of medicine is a questionnaire, the questionnaire was translated into Azerbaijani for universal accessibility in Azerbaijan.

**Statistical processing of results.** The research results were processed by the method of variation statistics. The characteristics of groups of homogeneous units were carried out by determining their arithmetic mean values (M), standard errors (m), range of changes (min-ax). To assess the differences in indicators, a nonparametric method was used - the U-test (Wilcoxon-Mann-Whitney).

When studying qualitative characteristics, the absolute number of groups, their shares, expressed as a percentage, and its average error were determined. Fisher's exact method was used to assess the differences in indicators between groups. The statistical difference between the groups was considered significant at  $p < 0.05$ . Statistical processing of results. The research results were processed by the method of variation statistics. The characteristics of groups of

homogeneous units were carried out by determining their arithmetic mean values (M), standard errors (m), range of changes (min-ax). To assess the differences in indicators, a nonparametric method was used - the U-test (Wilcoxon-Mann-Whitney).

## RESULTS AND DISCUSSIONS

### **Research results in the obstetric group**

The adhesion process after cesarean section and the resulting disturbances in the interposition of the organs of the pelvic cavity can have clinical consequences during subsequent repeated operations of the cesarean section. Some authors are of the opinion that with the number of cesarean sections, the adhesive process will be more pronounced and, in this regard, each subsequent operation carries the risk of damage to adjacent organs and difficult extraction of the fetus. In our study, a comparative assessment of the state of the abdominal cavity was carried out in 60 patients during repeated (2 or more) cesarean section operations, as well as in 300 women during a thorough analysis of the materials of operating journals and the medical history of women who underwent a repeated cesarean section for period from 2013-2014. As we can see in table 1, in our study, the dependence of the degree of adhesion process with the number of cesarean sections was found. As can be seen from this table, the adhesive process was more common after repeated cesarean section operations, in group 1, 8 (21.1%), in group 2, 9 (69.2%). Based on Table 1, the total number of patients with adhesions differed significantly in the second group, where the total number of patients with a history of cesarean section was 60 patients, among whom 17 (28.3%) women with adhesions were identified. In turn, in the retrospective group (group 1), the number of identified patients with adhesions was 31 (10.3%) of the total number of women with a history of caesarean section 300 for the period 2013-2014 y. In our study, the dependence of the degree of adhesion process with the number of cesarean sections was established (table 1).

**Table 1*****The frequency of adhesions depends on the number of CS operations performed***

Conducted QPs	Occurrence of adhesions					
	I группа			II группа		
	qty surveyed	number of surveyed with adhesions		qty surveyed	number of surveyed with adhesions	
		abs.	%		abs.	%
After the first CS	262	23	8,8±1,75	47	8	17,0±5,48
After second CS	38	8	21,1±6,61*	13	9	69,2±12,80**
Total number	300	31	10,3±1,8	60	17	28,3±5,8

Note: \* -  $p < 0.05$ , \*\* -  $p < 0.001$  - significance of the difference in relation to the first cesarean section.

As can be seen from this table, the adhesive process was more common after repeated caesarean section, in the 1st group - 8 (21.1%) cases, in the 2nd group - 9 (69.2%) cases. The total number of patients with adhesions differed in a significant prevalence in the second group, where the total number of patients with a history of cesarean section was 60 patients, among whom 17 (28.3%) women with adhesions were identified. In turn, in the retrospective group (group 1), the number of identified patients with adhesions was 31 (10.3%) cases.

A significant difference in the number of patients with adhesions in 2 groups with a predominance of patients with adhesions in the 2nd (prospective) group can be explained by the fact that the analysis of the state of the abdominal cavity was carried out more carefully directly during the repeated operation of the cesarean section, rather than based only on the data obtained from operational journals and case histories.

Due to the increasement in the number of repeated cesarean sections, some authors began to study the effect of repeated cesarean

sections on the formation of adhesions. However, all currently existing classifications for assessing the adhesive process are nonspecific or do not clearly describe the adhesive process. To date, there is no single classification of intra-abdominal adhesions after cesarean section. For example, Chapa et al. Have classified as: (grade 0) minimal or film adhesions (grade 1)–moderate / thick adhesions, (grade 2)–and no free space between the uterus and the anterior abdominal wall. This classification does not indicate which internal organs are involved in the adhesive process. The need for a standardized classification of adhesions is clear. This will allow researchers and readers to evaluate and compare the results of different studies. Regular use of a standardized adhesion classification may also enable future researchers to conduct more accurate retrospective studies. More importantly, knowledge of the presence and severity of the adhesive process will prepare the obstetrician-gynecologist for repeated cesarean section operations. In our study, the nature of the adhesions during repeated operations of cesarean section in the small pelvis was assessed according to 3 classifications: according to the generally accepted classification, classification by the index of peritoneal adhesions and classification of intra-abdominal adhesions after cesarean section according to T. Tulandi.

According to the generally accepted classification, the adhesion process in the small pelvis is subdivided into the IV degree of severity, in our study, most often in the patients, the adhesive process was of the II severity in 11 (64.7%) patients, the changes in the I and III degrees were met in the same amount 17, 6%. We did not see adhesions of the IV degree of severity in our patients. The classification of the adhesive process according to the classification of the peritoneal adhesive index (PAI) showed that in our study, single adhesions were more common in 12 (70.6%) patients, patients with two or more adhesions were much less common, in 5 (29, 4%) women, respectively. In our study, most often the adhesive process was localized in the pelvic area 66.7%, less often, although often adhesions were found in the left lower and right lower areas 12.5% (Table 2). When using the classification of intra-abdominal adhesions after cesarean section according to T. Tulandi, we found that most often the adhesion process was lo-

calized between the uterus and the bladder in 50.0% of cases, between the uterus and the omentum - 29.2%, 4.2% of adhesions localized between the uterus and the abdominal fascia. Adhesions between the omentum and the abdominal fascia were found in 8.3% of cases. Adhesions in other structures of the pelvic organs were also not common, namely in 8.3% of cases. In 23 (95.8%) women, adhesions were dense in consistency. In 20 (83.3%) women, the length of adhesions was 3-6 cm.

**Table 2**  
**Classification by the index of peritoneal adhesions (II gr.)**

Index	абс.	%
number of patients with adhesions	17	28,3
qty: average min – maximum	24 1,41±0,17 1 – 3	
Patients with two or more adhesions	5	29,4
Patients with solitary adhesions	12	70,6
Adhesion area:		
D - Left side	1	4,2±4,1
E - Bottom left	3	12,5±6,8
F - Pelvis	16	66,7±9,6
G - Bottom right	3	12,5±6,8
I - Центральное	1	4,2±4,1
Assessment of the degree of adhesions:		
1 - thin adhesions, blunt dissection	1	4,2±4,1
2 – strong adhesions, acute dissection	20	83,3±7,6
3 - very strong ascularized adhesions sharp dissection, damage hardly preventable	3	12,5±6,8

## Research results in the gynecological group

Disturbance of the anatomical ratio of the pelvic organs as a result of a several adhesion process, as a result of the undergone cesarean section operations, was revealed in all 44 women included in our group, operated directly from the laparoscopic approach with various diagnoses. Depending on the laparoscopic picture of the prevalence of adhesions in the abdominal cavity and the pelvic cavity, in the patients we operated on, we analyzed the prevalence of adhesions and also classified them according to the 3 classifications mentioned above.

Adhesions after cesarean section are more common in women operated on for ectopic pregnancy and hysterectomy. In isolated cases, adhesions after cesarean section also occurred in women operated on for formations on the ovaries, uterine perforation, myomectomy, inconsistency of the suture, hydrosalping paraovarian cyst, ovarian apoplexy and dermoid cyst<sup>19</sup>.

When classified by the index of peritoneal adhesions, the detected adhesions in most cases were multiple (70.5%), single adhesions were found in 29.5% of women. Adhesions were predominantly localized in the lower central (transmission) region of the small pelvis 34.8%±4.97. In 19.6%±4.14 cases, adhesions were located in the lower left, in 17.4%±3.95 in the right lower pelvic area. 16.3%±3.85 adhesions were centrally located, 4.3%±2.13 in the right lateral region, and 5.4%±2.36 in the right upper region. The least adhesions were located in the left lateral region - 2.2%±1.52.

In 79.3±4.22 cases, the adhesions were rather dense and required an acute dissection. In 10.9±3.25 cases, very strong vascularized adhesions were found, which required acute dissection and also entailed the risk of injury.

In the classification of the adhesive process according to T. Tulandi, the uterus, bladder and omentum were most often involved in the adhesive process. Most of 34.8%±4.97 adhesions were located

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<sup>19</sup> *Азим, А.А.* Особенности лапароскопической гистерэктомии у женщин с наличием в анамнезе операции кесарева сечения // Вестник проблем биологии и медицины, – 2019. Вып. 4, – т. 1 (153), – с. 62-65.

between the uterus and the bladder.  $30.4\% \pm 4.80$  adhesions were located between the omentum and the abdominal fascia.  $14.1\% \pm 3.63$  adhesions were located between the uterus and the abdominal fascia. There were  $9.8\% \pm 3.10$  adhesions between the uterus and the omentum. Also, adhesions were often found in other structures of the pelvic organs -  $10.9\% \pm 3.25$ . Most of the adhesions were dense at a consistency of  $90.2\% \pm 3.10$ . In one third of patients, adhesions of the omentum with the anterior abdominal wall were noted. The length of adhesions in most patients was within 3-6 cm, adhesions  $< 3$  in length were relatively rare  $9.8 \pm 3.10$ .

In women diagnosed with ectopic pregnancy with a history of cesarean section, mild and moderate adhesion was mainly observed,  $59.1 + 10.5$  and  $36.4 + 10.3$ , respectively. Given the specifics of ectopic pregnancy, it is quite natural that these were mainly women in the age group up to 35-39 years. The relationship between the severity of the adhesive process with age was not revealed. Moreover, the only case of a pronounced adhesive process was found in the youngest age group, which can be explained by the age-related reparative characteristics of the body and the biological properties of the connective tissue in young. The women examined by us with hysterectomy with a history of cesarean section mainly had an adhesive process of moderate and strong severity,  $40.0 + 15.5$  and  $60.0 + 15.5$ , respectively. All patients were in the age group of 40 years or more.

In the group of patients with a diagnosis of tubal pregnancy, after the first cesarean section, mild adhesions were more common, while after repeated cesarean section, mild and moderate adhesions were found in the same number. In the group of patients with hysterectomy after the first cesarean section, fusion of moderate and strong severity was found in the same number (40.0%), in turn, after repeated cesarean section, strongly pronounced adhesions were observed (20.0%)<sup>20</sup>.

Thus, our study found two groups of women in whom a history of cesarean section occurs much more often: a) operated on for ectopic pregnancy and b) hysterectomy. Comparison of these two

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<sup>20</sup> *Азим А.А.* Специфика гинекологических операций у женщин, перенесших кесарево сечение // *Azərbaycan Tibb Jurnalı*, – 2020. № 1, – с. 5-9.

groups shows that in the first subgroup the adhesive process is moderate and mild, while in the second subgroup more pronounced changes prevail.

**Results of the study of the quality of life.** In recent years, approaches to assessing the results of treatment of diseases have changed significantly. The traditional concept of illness as a mere physical illness is a thing of the past. At present, the influence of the disease on the psychological and emotional side of the patient's life is proven all over the world. In this regard, a new criterion for the effectiveness of treatment has been introduced into practice - an assessment of the health-related quality of life.

The quality of life criterion is used to determine the effectiveness of treatment, to determine the benefits of a treatment method with equivalent effects, both medical therapeutic and surgical aids. Improving the quality of life after the therapy is the optimal criterion for choosing a specific treatment strategy. QOL can serve as an indicator on the basis of which it is possible to develop programs, monitor the patient's health status after treatment in the early and late periods.

The first questionnaire survey was carried out at the first admission of patients to the obstetrics department of the 1st City Clinical Hospital of Baku, immediately before delivery, then we re-invited these patients after 6 months and a year later for a more thorough comparison of the results. The SF-36 questionnaire provides a quantitative determination of the quality of life according to the indicated scales. In this case, the indicators can range from 0 to 100 points. The higher the value of the indicator, the better the score according to the chosen scale (100 points corresponds to the highest indicator of health).

According to the results of the study, it was established that the indicator of physical functioning, i.e. the ability to perform physical activity during their usual day, 6 months after delivery was reduced in group 2 (caesarean section group) and amounted to  $62.3 \pm 2.37$  points, which was statistically significant compared to 1 group, where the same indicator was  $90.4 \pm 1.28$  ( $p < 0.001$ ). After 12 months, the scores in the 2nd group increased to  $91.8 \pm 1.06$ , in the 1st group -



to  $98.4 \pm 0.52$  points, while the scores in the 2nd group were significantly lower even after a year ( $p < 0.001$ ).

In both groups, the indices of the scale "The role of physical problems in limiting life activity" after 6 months were the same and amounted to 100.0 points. A year later, the indicators were almost the same and amounted to  $99.0 \pm 1.00$  points in group 2 and 100.0 points in group 1 ( $p > 0.05$ ).

The level of the scale "Physical pain" was rather low in the 2nd group before delivery -  $57.9 \pm 2.27$  and statistically significantly different from the 1st group, where it was  $79.7 \pm 1.77$  points ( $p < 0.001$ ), and 6 months after delivery in the 2nd group it was  $94.2 \pm 0.71$  points, in the 1st group -  $99.8 \pm 0.20$  points ( $p < 0.001$ ). A year later, the indicators were almost the same and amounted to  $99.8 \pm 0.20$  points in the 2nd group and 100.0 points in the 1st group ( $p > 0.05$ ).

The patient's subjective assessment of the general state of health was statistically significantly different in group 2 after 6 months ( $82.3 \pm 1.27$  points) from the indicator in group 1 ( $88.9 \pm 0.87$  points),  $p < 0.001$ . After 12 months, in the 2nd group the indicator was  $86.0 \pm 0.70$  points, in the 1st group -  $92.5 \pm 0.99$  points ( $p < 0.001$ ).

The indicator of the scale "Viability", showing a subjective assessment of the mood, energy, vitality of patients after 6 months was  $60.1 \pm 1.64$  points in the 2nd group and  $43.9 \pm 1.03$  points in the 1st group. group ( $p < 0.001$ ). A year later, this indicator in the 2nd group changed insignificantly to  $60.5 \pm 1.79$  points, the changes in the 1st group were slightly pronounced and amounted to  $45.5 \pm 0.84$  points ( $p < 0.001$ ).

Emotional and physical ability to communicate with other people in the study groups did not differ statistically ( $p > 0.05$ ).

The emotional ability of women to engage in professional or domestic work after 6 months significantly differed between the two study groups (the scale "The role of emotional problems in limiting life activity"). This indicator was 100.0 and  $78.0 \pm 5.92$  points in the 1st and 2nd groups, respectively ( $p < 0.001$ ). A year later, the indicators were the same and amounted to 100.0 in both groups, respectively (Fig. 1).

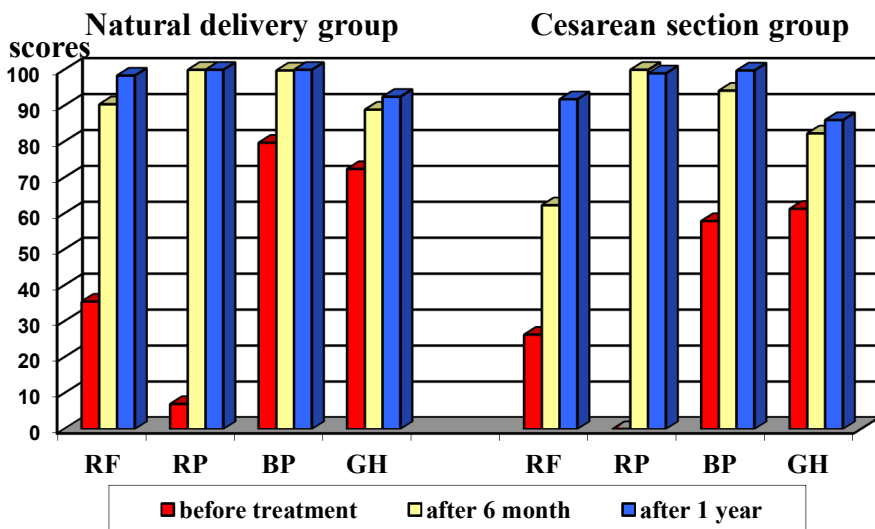
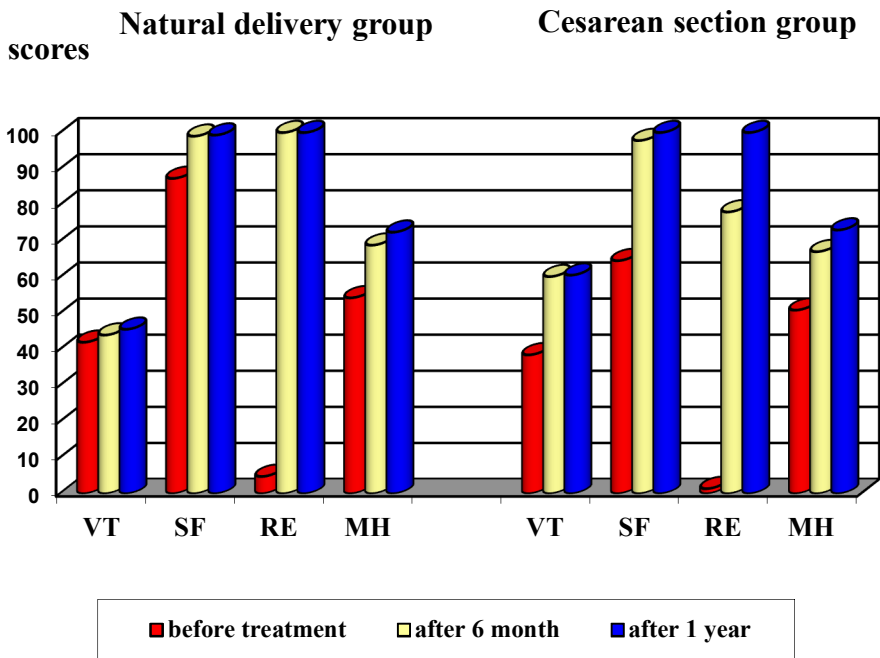


Fig 1. QoL indicators according to the SF-36 test survey data before and after surgery at different periods of treatment (physical component of health).

The last indicator in the questionnaire was the component "Mental health", the difference in which between the groups after 6 months and 1 year after surgery was statistically insignificant ( $p > 0.05$ ) (Fig. 2).

Thus, in patients of group 2, the quality of life was reduced compared with group 1, in turn, the differences were more pronounced after 6 months than after a year, which in turn indicates a faster rehabilitation after natural childbirth, both in physical and psychological aspect. When comparing the results obtained after processing the questionnaires of the SF-36 questionnaire, we obtained data indicating a higher quality of life in women who are in the group of natural childbirth<sup>21</sup>.

<sup>21</sup>Магалов, И.Ш., Азим, А.А. Оценка и сравнение качества жизни у женщин в зависимости от метода родоразрешения // Műasir ginekologiya və perinatologiyanın aktual məsələləri, – 2017, № 3, – с. 37-42.



*Fig 2. QoL indicators according to the SF-36 test survey data before and after surgery at different periods of treatment (psychological health component).*

So, despite the fact that the cesarean section is considered by modern obstetrics more as an alternative method of delivery than surgery, from the point of view of surgery, it remains an intervention with all the disadvantages, which include the adhesions. However, the formation of postoperative adhesions in connection with a caesarean section is not well understood. This concerns their possible negative impact on the quality of a woman's later life and on repeated interventions in the future. The presence of adhesions can become an obstacle to entering the abdominal cavity during another caesarean section or the cause of damage to the bladder or rectum during a seemingly "banal" operation. Other consequences of adhesions in the abdominal cavity include chronic abdominal pain and impaired intestinal passage. According to data published in the scientific literature,

adhesions after cesarean section occurs with a frequency of 24-73%. The scatter in the data is due to the different counting systems. In our study, the frequency of adhesions, if only the first caesarean section is taken into account, was lower than those reported. Although after a second operation, the occurrence of adhesions increases significantly, which coincides with the data of other authors. In the retrospective group, adhesions are less common. Presumably this is due to the fact that they were not counted so carefully or were not mentioned at all in the protocols of the operation. It is also very important that in patients with a history of cesarean section, a prolongation of the time of hysterectomy should be expected due to technical difficulties and the need for a more accurate and careful dissection of fibrotic tissues. In almost all patients who underwent a cesarean section, during hysterectomy, pronounced fibrosis was observed in the retroperitoneal spaces, which made it difficult to distinguish topographic landmarks and important structures located here. Dense adhesions of the uterus with the anterior abdominal wall and the bladder in these patients lead to visual changes in the anatomy of the pelvic cavity.

In our study, we analyzed the possible ways to optimize the technique of surgery for a cesarean section.

*Compliance with the requirements of asepsis.* This is the first and most basic rule, and must be followed in every detail. It is necessary to remember about such significant risks of infection as premature rupture of amniotic fluid. The correct prescription of antibiotics is of great importance. They should be prescribed prior to the incision.

*The direction of the incision on the abdominal wall.* With the exception of special cases, nowadays it is believed, including from the point of view of the formation of intra-abdominal adhesions, that transverse incisions are preferable to vertical ones, because they provide direct access to the lower parts of the uterus; when using them, there is no need to manipulate the intestines and other organs.

*Opening of the parietal peritoneum.* The most optimal approach is extraperitoneal access to the lower parts of the uterus, but it requires additional surgical training for obstetricians.

*What to do in case of tight adhesions after a previous caesarean section.* If there is a history of operations, including on the pelvic

organs, including the CS, the abdominal cavity should be entered as high as possible. In the case of a large number of adhesions and coarse adhesions that impede access to the lower parts of the uterus, it may be necessary for a higher incision on this organ for extraction and the fetus. Subsequent removal of the uterus outside becomes, in practice, necessary for more accurate wound closure, dissection of existing adhesions and control of hemostasis.

*Opening of the vesicouterine fold, separation of the bladder (flap formation).* The results of our study allow us to express the opinion that there is no need to open the vesicouterine fold, because subject to the principle of a direct incision in the uterus without opening the vesicouterine fold, i.e. 2 cm above it, there are no anatomical abnormalities for the occurrence of adhesions.

*Opening of the uterine cavity.* We also consider the height of the incision in the uterus to be of fundamental importance. The incision in the uterus should depend on the height of the presenting part. If the presenting part is the legs or buttocks, it should be slightly higher. With a cephalic presentation, the main task is to ensure its output through a wound with a small diameter. If you make a fixed incision without taking into account this principle, then you can open the uterine cavity above or below the presenting part, which can cause either difficult extraction or rupture of the wound edges in the direction of the uterine vessels and down.

*Removal of the uterus from the abdominal cavity.* Exteriorization of the uterus (removing it from the abdominal cavity after removing the fetus and afterbirth), in fact, is an undesirable action. The only excuse may be faster and more "safe" closure of the surgical wound.

Thus, adhesive disease of the small pelvis and abdominal cavity negatively affects the health status of patients, and the lack of an effective method of prevention and treatment makes it relevant both from a medical and socio-economic point of view. Thus, adhesive disease of the small pelvis and abdominal cavity negatively affects the health status of patients, and the lack of an effective method of prevention and treatment makes it relevant both from a medical and socio-economic point of view.

*Finger or instrumental dilatation of the cervical canal.* Finger or instrumental dilatation of the cervical canal before suturing the surgical wound on the uterus is quite logical when the CS is performed in the absence of labor. For digital expansion of the cervical canal, the surgeon must change gloves.

*Suturing the incision in the uterus.* For this purpose, it is preferable to use late-absorbable synthetic threads with a thickness of 0.

*Suturing of the muscle layer.* From the standpoint of the consistency of the scar on the uterus during the subsequent pregnancy, today it is again preferable to suture the uterus in two rows. When suturing an operating wound on the uterus, it is important not to leave rough inverted areas in order to avoid the formation of adhesions in these places. The wound should be dry, hemostasis along it is reliable (by applying additional sutures, if necessary).

*Suturing the endometrium.* On the basis of an ultrasound examination in the postoperative period, the need to capture the endometrium in the uterine suture is confirmed (especially when a single-row suture is applied).

It should always be remembered that the COP, with all its seemingly technical simplicity, is an intervention on a woman's reproductive organs. All actions of the surgeon, in particular, and the operating team, in general, must be very delicate. The integrity of the tissues, and first of all, this concerns the wound on the uterus, must be restored quickly and without tension. Tissue ischemia is unacceptable. Sanitation of the abdominal cavity should be thorough, but without microdamage to the peritoneal lining. The operation time should not be delayed. Prevention of bleeding and uterine hypotension should be carried out.

Thus, adhesions of the small pelvis and abdominal cavity negatively affects the health status of patients, and the lack of an effective method of prevention and treatment makes it actual both from a medical and socio-economic point of view.

## FINDINGS

1. Adhesions after cesarean section in varying degrees of severity occurs with a frequency of 10.3% (group I) to 28.3% (group II). After repeated cesarean section, the incidence of adhesions increases significantly in both groups - 21.1% and 69.2%, respectively [7].
2. Based on a comparison of the features of the adhesion process in women who underwent a cesarean section at different time intervals (groups - "ectopic pregnancy" and "hysterectomy"), as well as an analysis of the characteristics of adhesion in some patients from the obstetric group, it is possible to consider the formation of rough fusion of the uterus with the anterior abdominal wall and appendages with lateral surfaces as a consequence of the "wrong" surgical technique and the quality of the suture material [5, 8].
3. Changes in the anatomy of the uterus and appendages as a result of the appearance of several adhesions can cause an ectopic pregnancy and complicate any subsequent surgical intervention in the pelvic cavity in women who have undergone a cesarean section. To minimize the likelihood of adhesion, it is advisable to follow the rules for reconstructive surgery when performing a cesarean section. The choice of a rational classification of intra-abdominal adhesions after cesarean section consists in the complex use of classifications reflecting the severity of the adhesion process (the generally accepted classification of the adhesions of the pelvic organs by J. Hulka, classification by the peritoneal adhesion index (PAI), classification intra-abdominal adhesions after cesarean section according to T. Tulandi) [1, 11].
4. The quality of life in 2<sup>nd</sup> group, was reduced compared with 1<sup>st</sup> group, in turn, the differences were more pronounced after 6 months than after a year, which in turn indicates a faster rehabilitation after natural childbirth, both in physical and psychological aspect [4].

## PRACTICAL RECOMMENDATIONS

1. Always discuss the likelihood of adhesion along with other disadvantages of cesarean section when choosing a method of delivery with a pregnant woman.
2. To identify a group of increased risk for the formation of adhesions in the postoperative period (women with premature discharge of water, with a history of operations, with a known history of endometriosis or adenomyosis, or a previous pelvic infection)
3. Follow the principles of reconstructive surgery:
  - a. Good visualization and respect for tissues.
  - b. Correctly predict options for completing pregnancy and choose the method of delivery, it is advisable to plan a cesarean section with.
  - c. A balanced approach to expanding the scope of the operation, for example, the need for simultaneous myomectomy or intervention on the ovaries;
  - d. Observe hemostasis without excessive use of electricity;
  - e. Perform all surgical procedures as quickly as possible;
  - f. Profit prevention of infection;
  - g. Do not dry out serous coatings;
  - h. Do not get carried away with excessive sewing and choose; the right suture material;
  - i. Limited use of gauze swabs;
  - j. Wear talc-free and latex-free gloves.



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