

Pathology in the former Soviet Union: scientific misconduct and related phenomena

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Introduction

In previous publications we presented several cases of plagiarism and manipulation with statistics in the former Soviet Union [1,2]. Along with plagiarism, partial isolation from the rest of the world gave rise to another phenomenon: extensive criticism of foreign publications. This practice has been preserved until today. Here we are presenting several quotations from English summaries of recent articles. The summaries are quoted verbatim, exactly as they are printed in the journal.

“Negative consequences of treatment are observed at least in 16% patients at multidisciplinary hospitals and may result from the causes that are independent of medical staff, but more frequently from errors and inadequate treatment standards due to human factors. Systematic improvement of professionalism, which should be started from some educational reforms at medical institutes, is needed” [3].

Comment: This is a review of foreign literature with extensive criticism of the complications of therapy and professional misconduct in medicine in the U.S.A. and other countries. Materials of the Agency for Healthcare Research and Quality, the National Patient Safety Agency, the American Iatrogenic Association, and other sources are used. Analogous phenomena in Russia are not discussed.

“The experience by pathologists and clinical physicians in using the classification of tubulointerstitial lesions of the kidney, which was developed in the 1980s, has shown that it adequately reflects the structure of this important section of renal pathology. At the same time the classification is proposed to be modified on the basis of the actual current spectrum of renal pathology” [4].

Comment: A critical review, written by one of the leading Russian specialists in renal pathology, quotes only one foreign source, apart from two books translated into Russian. This reference is given without authors' or editors' names: “Renal disease. Classification and Atlas. Vol. 2: Tubulo-interstitial Disease. New York: Tokyo, 1982.”

Furthermore, we would like to present some quotations (verbatim translation from Russian) from textbooks and manuals bearing official recommendations of the Ministry of Health.

In the textbook of general pathology [5], officially recommended for medical students, extensive discussions against unnamed foreign authors are led (verbatim translations from Russian):

“Some authors declare that most important are local changes of organs and tissues, others advocate with the same persistence paramount importance of the general condition of the organism... both do not see the main thing” (p. 26).

“They [unnamed foreign authors] erroneously think that the final diagnosis was, is, and will be morphological” (p. 224).

“...many large modern foreign manuals of general pathology provide little if any information about etiology, pathogenesis and theory of disease. They elucidate exclusively factual achievements of ultrastructural and molecular pathology, not trying to make broad generalizations” (p. 35).

Another hallmark of this textbook is extensive criticism of generally accepted terminology from the International Classification of Diseases, for example, such terms as ischemic heart disease, cerebrovascular disease (pp. 261–270), or some terms with the ending -itis, e.g., gastritis, pancreatitis, hepatitis (p.154), which is a hardly suitable discussion in a textbook for medical students. At the same time, neologisms are invented: functiogenesis, morphofunctiogenesis, amiloidoblast, amiloidoclast etc. The new edition of this book [6] was enriched with plagiarism from Robbins' Pathologic Basis of Disease [7] (pp. 53–55 vs. 20, 27–29) and renamed Rukovodstvo (Manual).

Former functionaries, promoted to high positions in science and education, do not always maintain a duly high level of educational publications. Some quotations from the Tests in Pathological Anatomy (Figure 1), an edition that was used at the Peoples' Friendship University of Russia, are presented

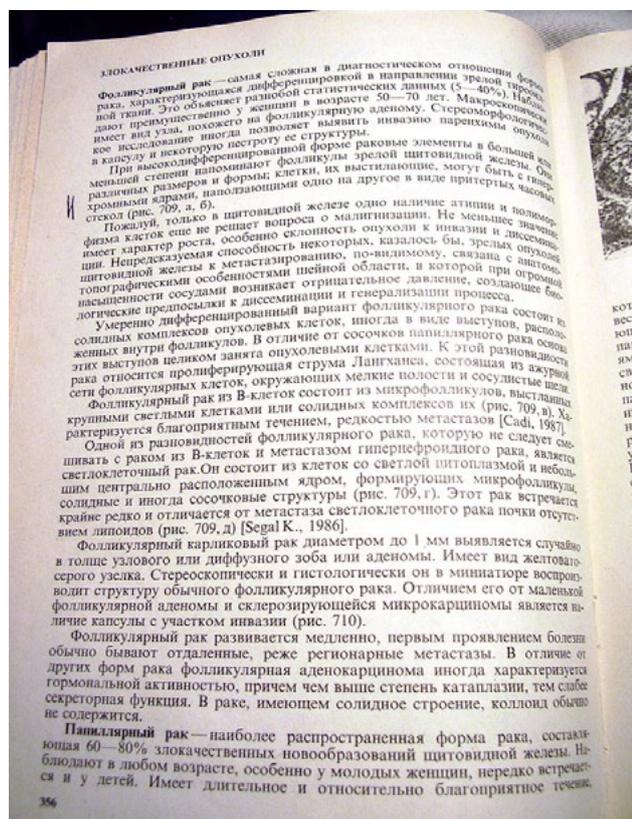


Figure 1. Tests in pathological anatomy. [8] The multiple-choice questions from this edition have been used for testing students at the Peoples' Friendship University of Russia. Many tests are formulated incorrectly and contain outdated or wrong information.

below [8]. Outdated and erroneous information from this edition was noticed by students. We received no response to our letter to the Dean of the Medical Faculty (Figure 2) Verbatim translations:

“Insufficient erythropoietic function of brain is a possible cause of anemia.”

“A focus of extramedullary hemopoiesis is named leukemic infiltration.”

“In exudative glomerulonephritis, serous, fibrinous or hemorrhagic exudate can accumulate within Bowman's capsule.”

“Chronic pyelonephritis is a disease with predominant involvement of glomeruli (glomerulopathy).”

“Primarily contracted kidney is typical for arterial hypertension.”

“Reddish color of the liver in cirrhosis depends on the blood flow impediment in the portal vein.”

“Hepar lobatum belongs to infectious cirrhosis.”

“Abundance of mucus in the stomach is typical for atrophic gastritis.”

“Renal insufficiency (amyloidosis) is one of the main causes of death in chronic obstructive lung diseases.”

“Necrosis of tonsils and underlying tissues is typical for scarlet fever.”

“Necrosis of lymph nodes is typical for scarlet fever.”

Previously we reported on scientific misconduct with the example of the Chancellor of Moscow I.M. Sechenov Medical Academy, Mikhail A. Paltsev, who simultaneously officiated as a Head of the Department of Pathology (named Pathological Anatomy in Russia) of the same Academy [1, 2]. In the year 2009, Paltsev abandoned both of his offices, but before doing so he provided employment for several functionaries (or their relatives) that did not have much experience in research or practice at the Department of Pathology. In fact, the Department of Pathology was regarded as a place where anyone (with permission from the nomenclatura could become a professor, a researcher, forge scientific papers, publish plagiarized textbooks, etc. Some experienced specialists were dismissed to clear places for them, which was harmful to the quality of biopsy reporting. With time, the former functionaries accumulated some knowledge of pathology, and the system worked somehow. This phenomenon has been widespread since the late 1980s: many former functionaries were allowed into educational and scientific institutions, lowering the quality of academics there. Among those employed by Prof. Paltsev at the Department of Pathology of Moscow I.M. Sechenov Medical Academy are the former Komsomol activist Andrei B. Ponomarev (a relative of Paltsev, according to some witnesses) and Yuri A. Kirillov, who has been manager at the Ministry of Health responsible for pharmacological research. In the past, Kirillov used inci-

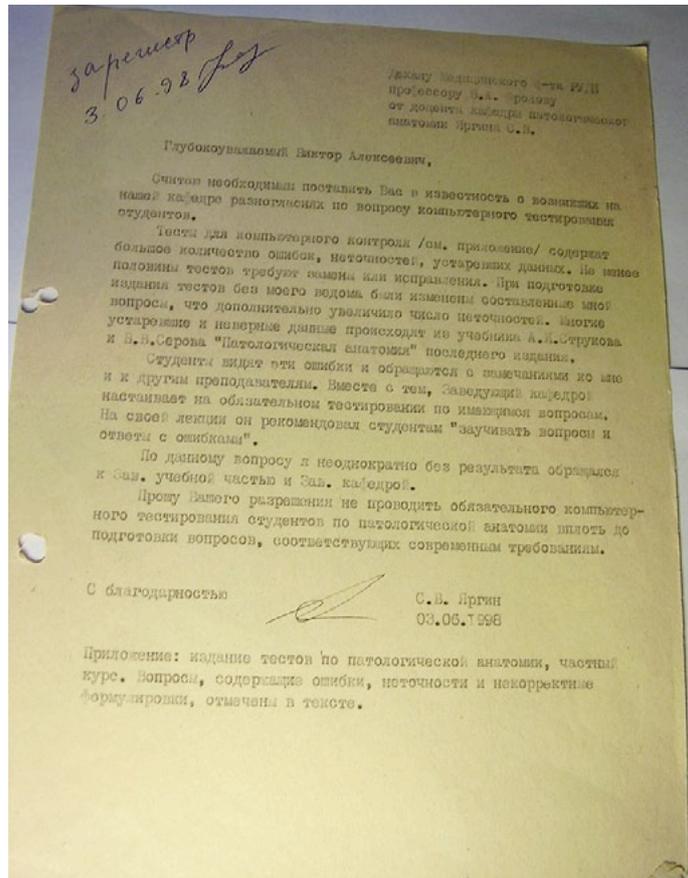


Figure 2. Report to the Dean of the Medical Faculty of Peoples' Friendship University of Russia. Translation: Upper left corner: Registered 3.06.98; signature of the secretary at the Dean's office.

To the Dean of the Medical Faculty of Peoples' Friendship University of Russia professor V.A. Frolov from the lecturer of the Department of Pathological Anatomy Jargin S.V.

Dear Victor Alekseevich,

It was my duty to inform you about disagreement in our department in regard to computer testing of students.

The multiple-choice questions for computer testing (enclosed) contain outdated information, numerous errors and inexactitudes. At least a half of the questions should be replaced or corrected. In the process of preparation of this edition, some questions that I have compiled were changed without informing me, which additionally enhanced the number of inexactitudes. A great part of outdated or wrong information originates from the last edition of the textbook by A.I. Strukov and V.V. Serov "Pathological anatomy".

The students notice the errors and make remarks to me and other lecturers. At the same time, the Head of the Department insists on obligatory testing of students using these multiple-choice questions. During a lecture, he recommended to "learn the questions with the errors."

This issue I repeatedly discussed with the Head of the Department and the Head of Studies.

Herewith I ask for your permission to abolish obligatory computer testing of the students in pathological anatomy until the multiple choice questions will be prepared in accordance with modern knowledge.

With gratitude,

Jargin S.V.

03.06.1998

Enclosure: edition of the Tests in pathological anatomy, special course. Questions, containing errors, inexactitudes and incorrect formulations, are marked in the text.

Table 1: Translation of the table pictured in Fig 3. Expression of bio-molecular tumor markers in thyroid diseases.

Note: 1 – number of positive cases; Note 2 – mean percentage of positive cells (mean expression level of the bio-molecular markers)

Disease	Markers							
	Ki-67		P53		c-myc		bcl-2	
	1	2	1	2	1	2	1	2
Thyroid carcinoma (n=36)	36 from 36	14	36 from 36	45	36 from 36	5	36 from 36	6
Thyroid adenoma (n=12)	12 from 12	< 1	0 from 12	0	12 from 12	4	12 from 12	4
Autoimmune thyroiditis plus carcinoma (n=9)	9 from 9	< 1	0 from 9	0	9 from 9	4	9 from 9	4
Thyroid tissue surrounding carcinoma (n=16)	16 from 16	< 1	16 from 16	< 1	16 from 16	5	16 from 16	4
Thyroid tissue surrounding adenoma (n=5)	0 from 5	0	0 from 5	0	5 from 5	2	5 from 5	2

From M. Paltsev et al, Arch Pathol, 1998, No. 3, v. 60, p. 5-10
Expression of biomolecular markers in thyroid diseases Таблица 1
 Экспрессия биомолекулярных опухолевых маркеров при заболеваниях щитовидной железы (ЩЖ)

Заболевание	Маркер							
	Ki-67		p53		c-myc		bcl-2	
	1	2	1	2	1	2	1	2
Рак ЩЖ (n = 36) <i>carc. аденома</i>	36 из 36	14	36 из 36	45	36 из 36	5	36 из 36	6
Аденома ЩЖ (n = 12) <i>аденома</i>	12 из 12	< 1	0 из 12	0	12 из 12	4	12 из 12	4
Аутоиммунный тиреоидит + рак (n = 9)	9 из 9	< 1	0 из 9	0	9 из 9	4	9 из 9	4
Окружающая рак ткань ЩЖ (n = 16)	16 из 16	< 1	16 из 16	< 1	16 из 16	5	16 из 16	4
Окружающая аденомы ткань ЩЖ (n = 5)	0 из 5	0	0 из 5	0	5 из 5	2	5 из 5	2

Примечание: 1 – число положительных случаев, 2 – средний процент положительных клеток (средний уровень экспрессии биомолекулярных маркеров).
 1 - positive cases; 2 - mean percentage of positive cells

този. Здесь ткань железы имела тубулярное либо трабекулярное строение, капсула отсутствовала. В 2 наблюдениях ФР ЩЖ и в 2 наблюдениях ФА ЩЖ окружающая опухоль ткань была неизменной. В остальных наблюдениях ткань ЩЖ имела изменения, сходные с зобными: фолликулы были различной величины и формы, выстланы местами уплощенными; местами пролиферирующим эпителием. Ткань железы близка к околону-

Экспрессия данного маркера в АИТ и аденомах была одинаковой, ниже, чем в карциномах, и составила 4 балла по общепринятой методике. Однако в окружающей аденомы ткани ЩЖ мы наблюдали самые низкие значения экспрессии – всего 2 балла (см. рис. 1, е).

Таким образом, высокие значения экспрессии c-myc в аденомах и в окружающей ткани могут

Figure 3. Table 1 from the article [10]

sional renal biopsies (6–10 mm in size), taken during kidney-preserving operations (e.g., lithotomy) from patients with acute or chronic pyelonephritis, for research of questionable quality. For further details, see <http://www.freewebs.com/ruspat1/reviewofliterature.htm>. Moreover, following the model of the Head of the Department, Paltsev, some other lecturers and researchers of the Department were involved in scientific misconduct (E.A. Kogan, L.V. Lysenko, P.V. Yushkov, E.M. Paltseva and others). We wrote about these facts to the present Chancellor of Moscow I.M. Sechenov Medical Academy (recently renamed I.M. Sechenov First Moscow Medical University), Prof. P.V. Glybochko, but received no response. Extensive misquoting was demonstrated in the Glybochko's doctoral dissertation (see <http://www.freewebs.com/ruspat1/apps/photos/album?albumid=3392303>). The only person who criticized some of the forged scientific works and dis-

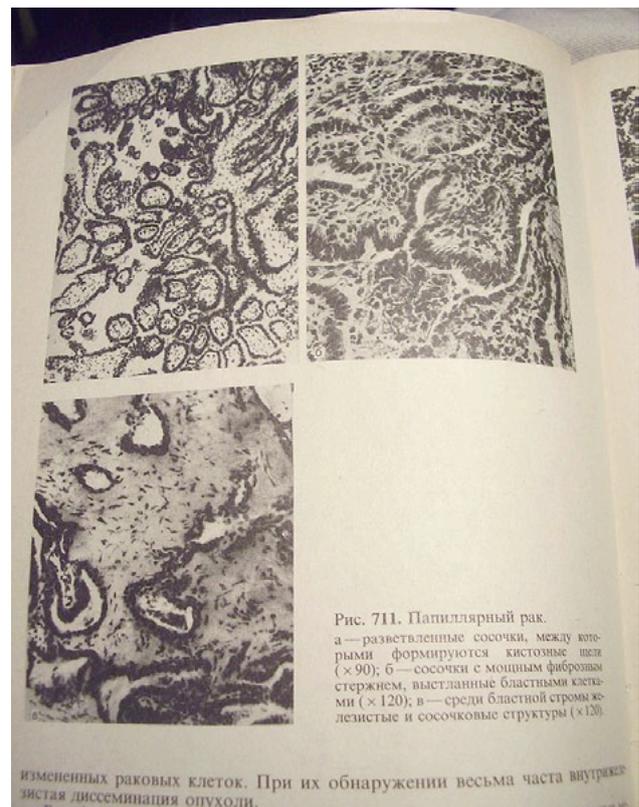


Figure 4. Fig. 711 from the manual [16].

Translation of the legend: *Papillary carcinoma*

- a – cystic clefts are formed between branching papillae (x90);
- b – papillae with strong fibrous stalks, covered by blast cells (x120);
- c – glandular and papillary structures within the blastic stroma (x120)

Comment: The illustrations are not characteristic for papillary thyroid carcinoma. Ground-glass nuclei and other typical nuclear changes are not recognizable. The image in “c” can have originated from a regressively changed goiter.

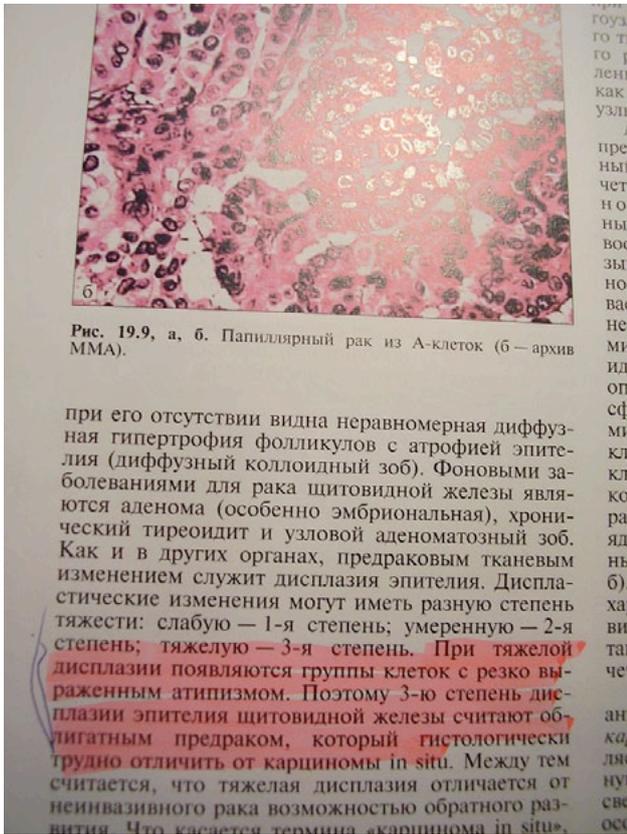


Figure 5. The whole section on follicular thyroid carcinoma is presented on this page from the manual [16]. The most important diagnostic criteria of follicular carcinoma – capsular and vascular invasions – are not mentioned at all. On the basis of this description no reliable differential diagnosis between follicular thyroid carcinoma and adenoma can be made.

missals of the specialists experienced in diagnostic pathology was Prof. Tatiana N. Hansen (T.N. Ganzen according to the Russian spelling). For that reason she was dismissed from the Academy early in the 2000s. Prof. Hansen was one of the best specialists in biopsy and autopsy in the Department and a good lecturer. Her dismissal hurt the quality of biopsy reporting and even the caliber of teaching itself.

Some publications [9–11], obviously based on fabricated or modified data, are contradictory to generally accepted knowledge and can be misleading for practice. For example, immunohistochemical evidence of the gene p53 mutation was reported in all 36 studied cases of differentiated thyroid carcinoma, including 11 cases of follicular, 6 cases of papillary, 5 cases of medullary, and 14 cases of ‘papillary-follicular’ (absent in modern classifications) carcinoma; whereas in all cases of adenoma and other benign thyroid conditions (26 cases) no evidence of p53 mutation was found (Figure 3) [10]. Resulting statistical significance of the difference is extremely high (36/36 vs. 0/26, $P < 0.0001$). In literature, p53 mutation is regarded to be a late event in thyroid carcinogenesis, associated with undifferentiated or anaplastic carcinomas, usually not occurring in differentiated tumors [12, 13].

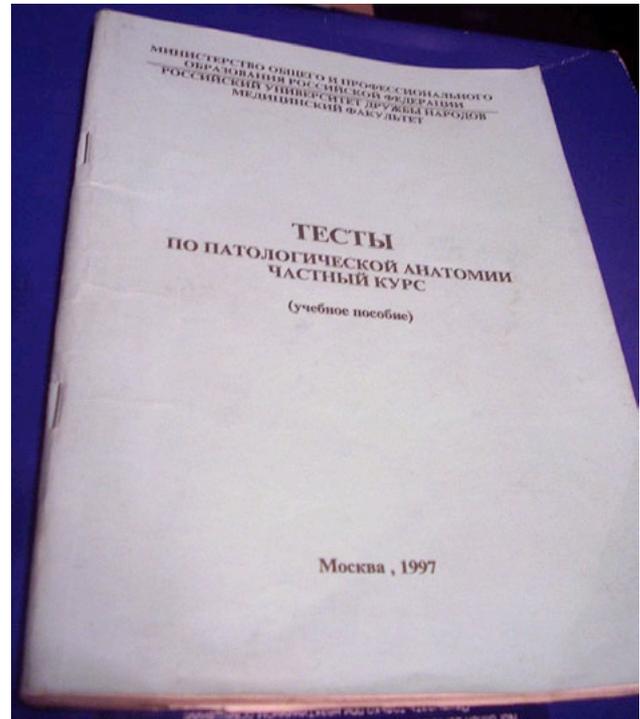


Figure 6. Text fragment from the section “Thyroid Carcinoma”, p. 402, from the atlas [19]. Translation and comment are in the text.

Therefore, the statement (verbatim translation): “High degree of expression of p53 in carcinomas and its absence in adenomas allows concluding that p53 can serve as a marker of thyroid carcinoma” [9] can lead one to overdiagnosis of malignancy, especially today, when the improved economy in Russia enables the purchase of modern immunohistochemical kits and other new laboratory methods. The journal *Arkhiv Patologii*, where these materials were published, is the only Russian journal intended for practical pathologists. Our critical letter on this topic was rejected by *Arkhiv Patologii*.

Access to foreign professional literature remains limited in Russia [14], which is harmful for practice and research. The widely used manual of tumor pathology [15] is outdated, imprecise, and in many fields (bone marrow, lymph nodes, thyroid, soft tissue tumors, and others) is hardly suitable for diagnostics. Some passages from the section on thyroid tumors [16] deserve to be quoted in verbatim translation:

In the section “Follicular Carcinoma” on p. 356, it reads: “In highly differentiated form [of the follicular thyroid carcinoma], cancerous elements more or less resemble the follicles of mature thyroid. They have different form and size; the covering cells can have hyperchromic nuclei, crawling onto one another like ground watch glasses.”

Comment: The term “ground watch glasses” (*yadra v vide pritertykh chasovykh stekol*), a mistranslation of “ground-glass nuclei,” can be found in many Russian-language publications. It is a diagnostic criterion of the papillary thyroid

carcinoma but not of follicular carcinoma. Nuclear changes, characteristic of papillary carcinoma, are not visible in the illustrations (Figure 4). In the section about follicular thyroid carcinoma, the most significant diagnostic criteria, such as the capsular and vascular invasions, are not mentioned (Figure 5). Using this most authoritative manual of tumor pathology, issued by the N.N. Blokhin Cancer Research Center in Moscow, it is not always possible to differentiate follicular thyroid carcinoma from adenoma. For many pathologists, especially outside Moscow and St. Petersburg, this two-volume edition has been the main source of information on many topics. Another example from the same edition is found in the section on nasopharyngeal pathology [17], where no stromal atypia of nasal polyps [18] is described. We know of a case of a false-positive diagnosis of sarcoma as a consequence of it.

In the new *Atlas of Tumor Pathology* [19] the following is written in the section about thyroid carcinoma (p. 402) it reads (verbatim translation): “In severe dysplasia appear cell groups with clearly visible atypia. Therefore, third grade dysplasia is considered as an obligate pre-cancer, which histologically is hardly distinguishable from carcinoma in situ. At the same time, it is believed that severe dysplasia differs from non-invasive cancer because it is reversible” (Figure 6). Nuclear atypia (enlargement, hyperchromatism, pleomorphism) is not considered in modern literature as a criterion of malignancy in follicular and papillary thyroid nodules, and the concepts of dysplasia and carcinoma in situ are not applied to them [20]. Cases of false-positive diagnoses of thyroid carcinoma, caused by misinterpretation of nuclear pleomorphism as a criterion for malignancy, are known. Overdiagnosis of malignancy (cases of false-positive diagnoses of thyroid carcinoma in children with corresponding overtreatment) has obviously been one of the overestimation mechanisms of the consequences of the Chernobyl accident, in particular, thyroid cancer incidence [21, 22].

Finally, thanks to the economic upturn in Russia, some institutions started purchasing foreign literature, but it has not sufficed. On the other hand, acquisition of literature by medical libraries has decreased since the 1980s [14]. It comes as no surprise that foreign publications are, scarcely quoted in Russian scientific articles; well-known phenomena, disease entities, morphological changes etc. are described without referring to foreign publications, which can be misunderstood as something new from Soviet scientists [23, 24].

The following are two quotations from English summaries of articles recently published in *Arkhiv Patologii*. The summaries are available also on PubMed.

“The structure, clinical manifestations, behavior of cavernous hemangioma of the skin of the face and neck, and the oral soft tissues were studied, by using biopsy specimens from 229 patients. Three types of cavernous hemangioma of

these areas were identified. Their preferred treatments were defined and pathogenetically warranted“ [25].

Comment: In describing such a well-known lesion as cutaneous hemangioma, the authors did not quote a single foreign source. The volume, *Pathological Anatomy* by Paltsev and Anichkov [26], largely plagiarized from Robbins' *Pathologic Basis of Disease* [1, 27], is quoted instead.

Another example reads, “The authors present the incidence and specific features of specific bone marrow lesion and the state of normal hemopoiesis and stroma. The criteria for the differential diagnosis of reactive polyclonal lymphoid proliferation in the bone marrow that may accompany many haematological and non-haematological diseases with specific bone marrow lesion in lymphoproliferative diseases are outlined“ [28].

The article continues, “According to our results, several histological types of bone marrow involvement in lymphoproliferative diseases can be distinguished: diffuse, interstitial and focal“ [28]. Then follows the usual description of bone marrow involvement patterns by lymphoma that can be found in many textbooks, which are not referred to. The text can be misunderstood as an original description of bone marrow involvement patterns by lymphoproliferative disorders.

In conclusion, in the Russian-language handbook of immunohistochemistry [29] cannot substitute for internationally used manuals [30] because it contains references to dubious publications. Scientific misconduct was proven also in a series of publications from the Cardiology Research Centre in Moscow [31]. Further examples and illustrations can be found at <http://www.freewebs.com/ruspat1/>.

In summary, there are many positive changes in Russian pathology. There is a spirit of cooperation among Russian pathologists. There are talented medical technologists producing thin slides using old sledge microtomes. The improved economy allows the purchase of modern equipment and the introduction of new methods into practice and research. Hopefully, this article will be only of historical interest in the near future.

Summary

There is a persisting interest in the topic of scientific misconduct. The following main forms of scientific misconduct are known: plagiarism, falsification or fabrication of data, manipulations with statistics, misquoting, false or gift authorship, as well as revenge on the whistleblowers revealing and exposing such cases. Of particular concern is plagiarism, which is spreading today. Former functionaries, promoted to high positions in academies and universities in the former Soviet Union, are often unable to maintain a duly

high academic standards in publications. Some textbooks, manuals and journal articles are imprecise, contain plagiarism or misleading information that lead to overdiagnosis of malignancy, and examples are provided in this article. In spite of remaining shortages and drawbacks, there are grounds for optimism. The upturn of the economy in Russia is making possible the purchase of foreign literature and modern equipment, introducing new methods into research and practice. Therefore, we hope that this article will be only of historical interest in the near future.

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