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MIKROFOTOGRAFSKI ATLAS NORMALNE HISTOLOGIJE (1925) — PIONIRSKI DOPRINOS ALEKSANDRA Đ. KOSTIĆA MEDICINSKOM OBRAZOVANJU

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SAŽETAK

Tokom prvih godina rada Medicinski fakultet se suočavao sa brojnim izazovima, među kojima se posebno isticao nedostatak stručne literature, naročito one na srpskom jeziku. U oblasti histologije, dodatni izazov je bio prikazivanje mikroskopskih preparata i njihovo prepoznavanje u okviru praktične nastave, jer se oslanjalo isključivo na crteže. Inovaciju u nastavi doneo je 1925. godine *Mikrofotografski atlas normalne histologije*, autora Aleksandra Kostića. Bio je to prvi histološki atlas namenjen studentima Medicinskog fakulteta u Beogradu i jedan od prvih u svetu koji je u potpunosti sadržao mikrofotografije. Kostić je set mikrofotografija za atlas izradio u Fotografskom odeljenju, osnovanom pri Institutu 1924. godine.
Objavljivanjem ovog atlasa, Aleksandar Kostić je utemeljio svoju naučno-fotografsku misiju, čime je postao pionir medicinske fotografije, kako u Srbiji, tako i u tadašnjoj Kraljevini Srba, Hrvata i Slovenaca.

Ključne reči: Aleksandar Đ. Kostić, mikrofotografija, histološki atlas

Profesor Aleksandar Đ. Kostić bio je prvi profesor histologije i embriologije na Medicinskom fakultetu u Beogradu i osnivač Histološkog instituta (danas Institut za histologiju i embriologiju), koji od 1983. godine nosi njegovo ime.

Diplomirao je 1921. godine na Medicinskom fakultetu u Strazburu, a već u januaru naredne godine vratio se u Beograd. Uslovi za rad koje je zatekao na Fakultetu bili su izuzetno skromni i ograničeni, kako u pogledu nastave, tako i naučnoistraživačkog rada, jer se zemlja još uvek oporavljala od posledica Velikog rata. Poseban izazov predstavljao je nedostatak stručne literature, naročito one na srpskom jeziku. Prve generacije studenata učile su iz skripti napisanih na osnovu stenografskih beležaka sa predavanja, koja je objavljivalo Udruženje jugoslovenskih medicinara. Prvi originalni udžbenik histologije Kostić je objavio 1927. godine. Pre njega, jedino je profesor anatomije Ilija Šapšal izdao udžbenik iz anatomije (1923), međutim, bio je to prevod sa ruskog jezika (1).

Predavanja i vežbe iz histologije i embriologije održavani su svim radnim danima, u trajanju od jednog, odnosno dva sata[1]. Na vežbama se radilo u grupama od po tridesetak studenata. Mikroskopi su bili pozajmljeni sa Instituta za fiziologiju i Instituta za patologiju, koji su ranije osnovani. Stolovi i klupe su pozajmljeni od Dunavske bolničarske čete. Nije se oskudevalo jedino u histološkim preparatima, jer je komplet od oko 2.000 preseka Kostić izradio još tokom boravka u Strazburu, u laboratoriji profesora Pola Buena (fr. *Pol Bouin*) (2, 3).

Istorijski kontekst i značaj mikrofotografije u histologiji

Do ranih 1920-ih, većina histoloških atlasa sadržala je ručno izrađene crteže, koji su, iako često umetnički kvalitetni, bili podložni subjektivnim interpretacijama autora i nisu uvek verno odražavali mikroskopske detalje. I sam Kostić u predgovoru

[1] Podatak dobijen uvidom u Univerzitetske kalendare, objavljivane za svaku školsku godinu tokom međuratnog perioda

REVIEW ARTICLE

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MICROPHOTOGRAPHIC ATLAS OF NORMAL HISTOLOGY (1925) — PIONEERING CONTRIBUTION OF ALEXANDER Đ. KOSTIĆ TO MEDICAL EDUCATION

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SUMMARY

During its early years, the Faculty of Medicine faced numerous challenges, one of which was the lack of medical literature, especially in the Serbian language, which was particularly pronounced. In histology, an additional challenge was the presentation and identification of microscopic specimens during practical classes because it relied solely on drawings. An innovation in teaching was introduced in 1925 with the Microphotographic Atlas of Normal Histology, authored by Aleksandar Kostić. It was the first histological atlas intended for students of the Medical Faculty in Belgrade and one of the first in the world to contain complete microphotographs. Kostić prepared the set of microphotographs for the atlas in the Photography Department, established at the Institute in 1924.
By publishing this atlas, Aleksandar Kostić established his scientific-photographic mission, making him a pioneer in medical photography both in Serbia and in the then Kingdom of Serbs, Croats, and Slovenes.

Keywords: Aleksandar Đ. Kostić, microphotography, histology atlas

Professor Aleksandar Đ. Kostić was the first professor of Histology and Embryology at the Faculty of Medicine in Belgrade and the founder of the Institute of Histology (now the Institute of Histology and Embryology), which has been named after him since 1983.

He graduated from the Faculty of Medicine in Strasbourg in 1921, and already in January of the following year he returned to Belgrade. The working conditions, which he found at the Faculty, were extremely modest and limited, both in terms of teaching and scientific research, because the country was still recovering from the consequences of the Great War. A special challenge referred to the lack of literature, especially in the Serbian language. The first generations of students learned from scripts written on the basis of shorthand notes from lectures, which were published by the Association of Yugoslav Medics. Kostić published the first original Histology textbook in 1927. Before him, only Anatomy Professor Ilija Šapšal published a textbook on Anatomy (1923), however, it was a translation from the Russian language (1).

Histology and Embryology lectures and laboratory exercises were held on all weekdays and lasted one or two hours[1]. Exercises were done in groups of about thirty students. Microscopes were borrowed from the Institute of Physiology and the Institute of Pathology, which had been established before. Desks and chairs were borrowed from the Danube Army Hospital Unit. However, the only thing they did not lack were histological slides, because Professor Kostić made a set of about 2,000 sections during his stay in Strasbourg in the laboratory of Professor Pol Bouin (2,3).

Historical context and importance of microphotography in histology

Until the early 1920s, most histological atlases contained drawings, which although, often of

[1] Data obtained from University calendars, published for each school year during the interwar period

svog Atlasa kaže da „prilikom reprodukcije rukom postoji nesvesna sklonost ka uprošćavanju slike, ako ne i ka jačem i vidnijem isticanju detalja koji se s toliko jasnoće stvarno ne zapažaju. Otud se crtež gotovo uvek manje ili više udaljuje od originala.” (4).

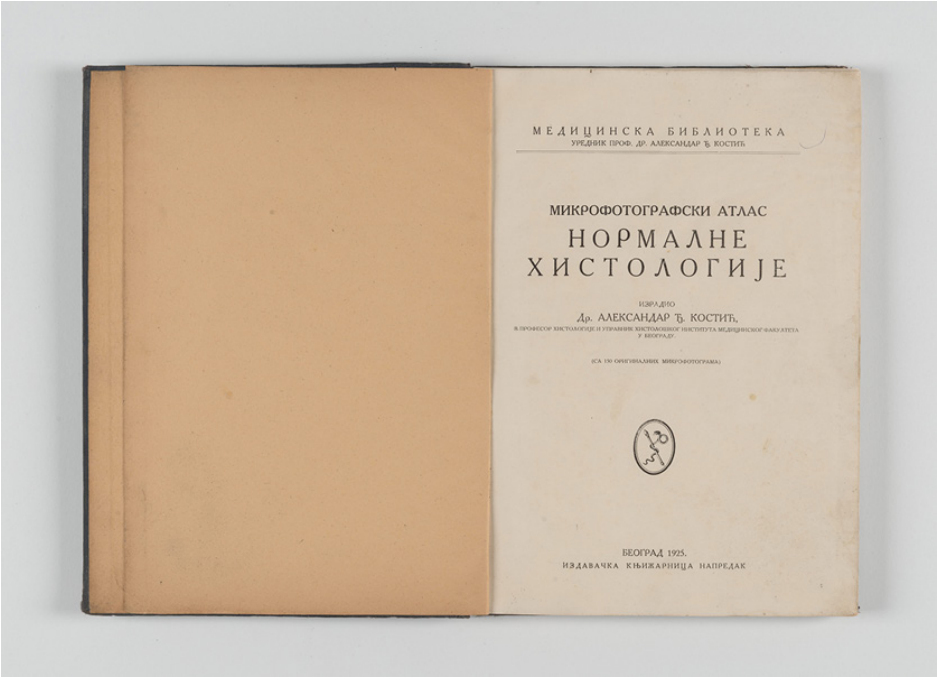
Upravo je razvoj mikroskopije i fotografije omogućio stvaranje autentičnih snimaka tkiva i organa, čime je znatno unapređena objektivnost i tačnost prikaza. Mikrofotografija se kao metoda u histologiji razvijala od kraja 19. veka, ali je njen značajan prodor usledio tek početkom 20. veka, zahvaljujući tehničkim unapređenjima fotografskih sistema i mikroskopa. To je omogućilo izradu atlasa koji su, pored brojnih crteža, bili ilustrovani i mikrofotografijama, u početku malobrojnim (5, 6). Razlog tome leži u činjenici da je mikrofotografska tehnika ipak bila slabije dostupna i vrlo skupa, a zahtevala je dobro poznavanje i histologije i same fotografske tehnike. Prof. Emil Holmgren sa Karolinska instituta u Švedskoj u predgovoru svog, inače, prvog udžbenika iz histologije na švedskom jeziku (1920), takođe se osvrće na te probleme. Njegov udžbenik je sadržao veliki broj mikrofotografija, i objavljen je uz finansijsku pomoć donatora (7).

Mikrofotografski atlas normalne histologije

Mikrofotografski atlas normalne histologije je nastao za nepunih godinu dana rada Fotografskog odeljenja, koje je 1924. godine osnovano pri Histološkom institutu. Kako je naglasio sam Kostić, bio je i „prva tekovina” Odeljenja (slika 1) (3). U pitanju je histološki atlas kompletno opremljen autentičnim mikrofotografijama. Gotovo sve histološke preparate je izradio sam profesor Aleksandar Kostić, dok su svega dva izradili njegovi saradnici Svetislav Popović (kora malog mozga) i Aleksandar Telebaković (nervna vlakna).

Na stranicama Atlasa, 143 mikrofotgrafije su raspoređene u 70 „tablica” (duplih strana). Najpre su predstavljeni različiti oblici ćelija (jedna tablica), zatim faze ćelijskog ciklusa (pet tablica) (slika 2), vrste tkiva (16 tablica) i najzad preparati različitih organa. Na najvećem broju tablica se prikazane strukture vide na malom, a zatim i na velikom uveličanju, kako bi se bolje sagledali pojedini specifični detalji (slika 3). Na tablicama su najpre navedeni naziv preparata, poreklo uzorka, korišćeno uveličanje, vrsta fiksativa i tehnika bojenja, uglavnom i legenda za označene strukture, a zatim slede detaljna, često i vrlo živopisna i detaljna objašnjenja. Takvim metodološkim postupkom Kostić je studentima obezbedio izvanredno učilo, koje im je nesumnjivo olakšavalo razumevanje i usvajanje gradiva, a moglo je da im bude korisno i kasnije, pri izučavanju patohistologije.

Pored značaja koji je imao u svoje vreme, Atlas je iz današnje perspektive, vrlo interesantan za dodatnu analizu iz nekoliko aspekata. Naime, poznato je da se Kostić bavio medicinskom terminologijom



Slika 1. Mikrofotgrafski atlas normalne histologije (digitalizovano u Audiovizualnom arhivu i centru za digitalizaciju SANU)

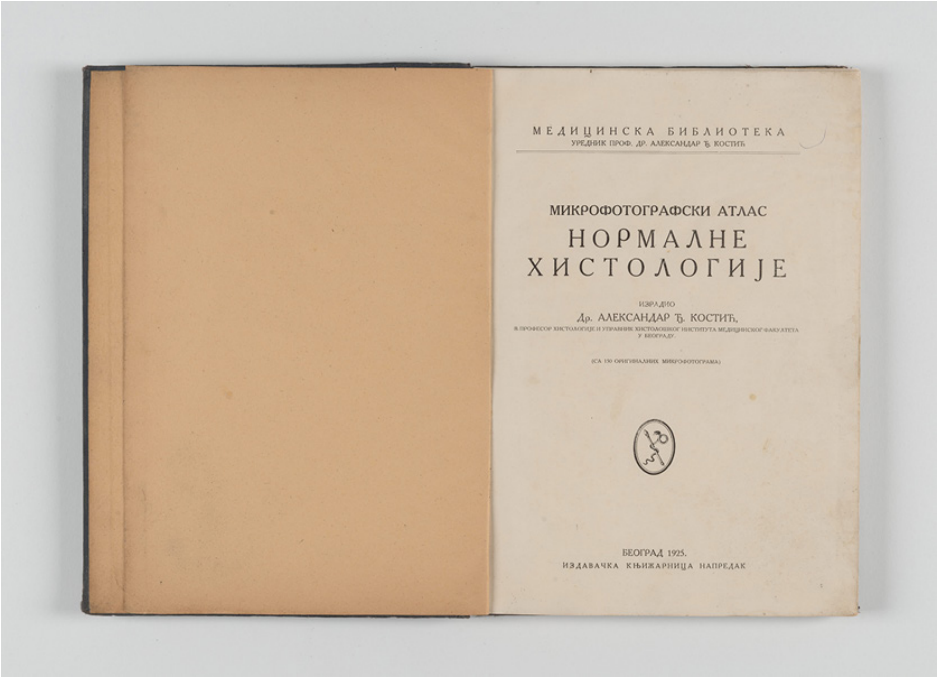
artistic quality, were subject to authors' subjective interpretations and did not always faithfully reflect microscopic details. Kostić himself says in the preface of his Atlas that "when reproducing by hand, there is an unconscious tendency towards simplifying the image, and even towards a stronger and more visible highlighting of details that are not really noticed with such clarity. Therefore, the drawing deviates from the original more or less." (4).

It was precisely the development of microscopy and photography that made it possible to create authentic images of tissues and organs, which significantly improved the objectivity and accuracy of the presentation. Microphotography as a method in histology has developed since the end of the 19th century, but its significant breakthrough came at the beginning of the 20th century, thanks to the technical improvements of photographic systems and microscopes. This enabled the creation of atlases, which, in addition to numerous drawings, were also illustrated with microphotographs that were not numerous in the beginning (5,6). The reason for this lies in the fact that the microphotographic technique was still less available and very expensive, and it required knowing both histology and the photographic technique well. Prof Emil Holmgren from the Karolinska Institute in Sweden, in the preface of his textbook on histology, which is the first textbook on histology in the Swedish language (1920), also referred to these problems. His textbook contained a lot of microphotographs, and it was published with the financial help of donors (7).

Microphotographic Atlas of Normal Histology

The Microphotographic Atlas of Normal Histology was created in less than a year by the Department of Photography, which was established at the Institute of Histology in 1924. As Professor Kostić emphasized, it was "the first achievement" of the Department (Picture 1) (3). It is a histological atlas completely equipped with authentic microphotographs. Almost all histological slices were made by Professor Aleksandar Kostić himself, while only two were made by his associates Svetislav Popović (the cerebellar cortex) and Aleksandar Telebaković (nerve fibers).

On the pages of the Atlas, 143 microphotographs were arranged in 70 "panels" (double pages). First, different shapes of cells were presented (one panel), then phases of the cell cycle (five panels) (Picture 2), types of tissue (16 panels) and, finally, histological slides of different organs. In the majority of panels, the structures are shown at low and then at high magnification, to provide a clearer view of specific details (Picture 3). The name of the slide, the origin of the sample,



Picture 1. Microphotographic Atlas of Normal Histology (digitized in SASA Audiovisual Archive and Center for Digitalization)

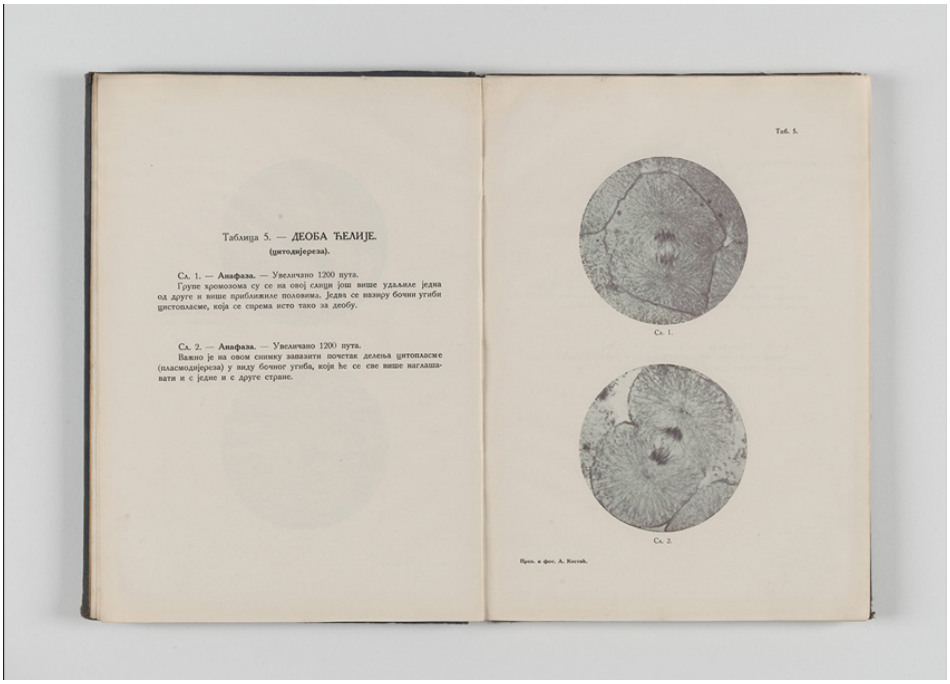


Таблица 5. — ДЕОБА ЋЕЛИЈЕ.
(цитодијереза).

Сл. 1. — Анафаза. — Увеличано 1200 пута.
Групе хромозома су се на овој слици још више удаљиле једна од друге и више приближиле половима. Једва се назиру бочни угиби цитоплазме, која се спрема исто тако за деобу.

Сл. 2. — Анафаза. — Увеличано 1200 пута.
Важно је на овом снимку запазити почетак дељења цитоплазме (плазмодијереза) у виду бочног угиба, који ће се све више наглашавати и с једне и с друге стране.

Таб. 5.

Сл. 1.

Сл. 2.

Прел. и фот. А. Костић.

Slika 2. Tablica 5 – „Deoba ćelije” (digitalizovano u AVA SANU)

i da je bio autor višejezičnog Medicinskog rečnika. Pojedini termini korišćeni u Atlasu, koji danas više nisu u upotrebi, kao na primer: citodijereza (deoba ćelije), polutarski venac (ekvatorijalna ravan), zona ušorene rskavice (zona proliferacije), podgrlačna žlezda (štitasta žlezda), vezivne obge (vezivne lamele) i brojni drugi, predstavljaju interesantan materijal za proučavanje razvoja srpske medicinske tj. histološke terminologije. Kostićevi opisi snimaka preparata su vrlo živopisni, sa mnogo prideva, i veoma se razlikuju od današnjih, koji su kratki, jasni i vrlo precizni. Zanimljiv primer je opis pasemnika (epididimisa): „Ovaj snimak izvanredno jasno prikazuje izgled epididimnog kanala, kada se njegove ćelije nalaze u punom jeku lučenja sekretornih zrna” (4).

Za razliku od savremene prakse u medicinskoj histologiji, koja se bazira na korišćenju humanog materijala i uzoraka dobijenih od ograničenog broja životinjskih vrsta, Kostić je pored humanih, koristio i uzorke vrlo različitog porekla: od riba, žaba, zmija, ježeva, ptica, ovaca, pasa, zečeva, i

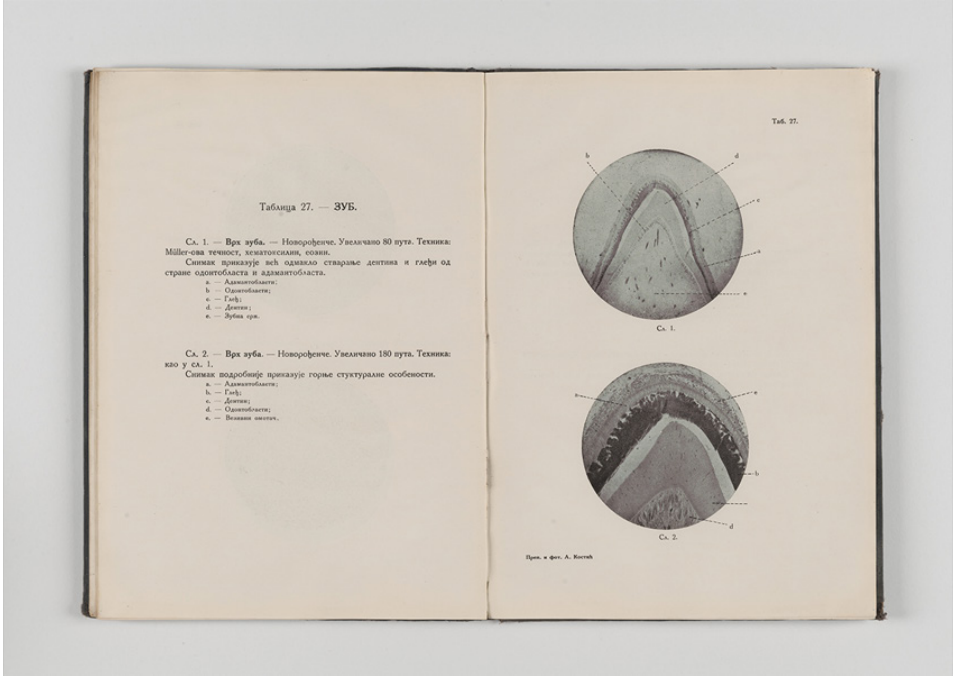


Таблица 27. — ЗУБ.

Сл. 1. — Врх зуба. — Новорођенче. Увеличано 80 пута. Техника: Müller-ова течност, хематоксилин, еозин.
Снимак приказује веће одмакло стварање дентина и глеђи од стране одонтобласта и адамантобласта.
a. — Адамантобласти;
b. — Одонтобласти;
c. — Глеђ;
d. — Дентин;
e. — Зубна пул.

Сл. 2. — Врх зуба. — Новорођенче. Увеличано 180 пута. Техника: као у сл. 1.
Снимак подробније приказује горње структуралне особености.
a. — Адамантобласти;
b. — Глеђ;
c. — Дентин;
d. — Одонтобласти;
e. — Везивна ивотча.

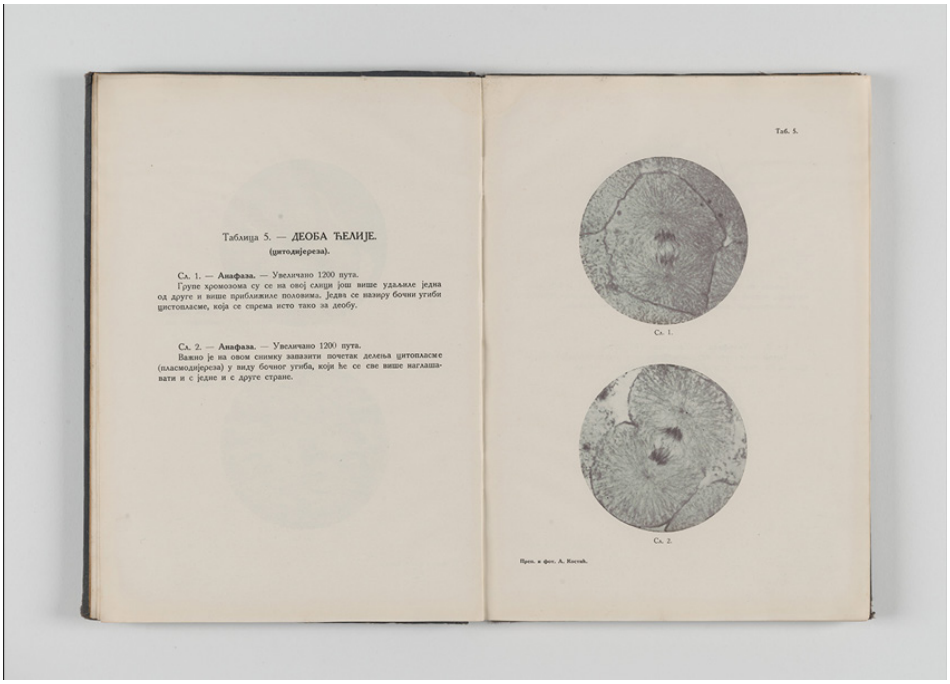
Таб. 27.

Сл. 1.

Сл. 2.

Прел. и фот. А. Костић

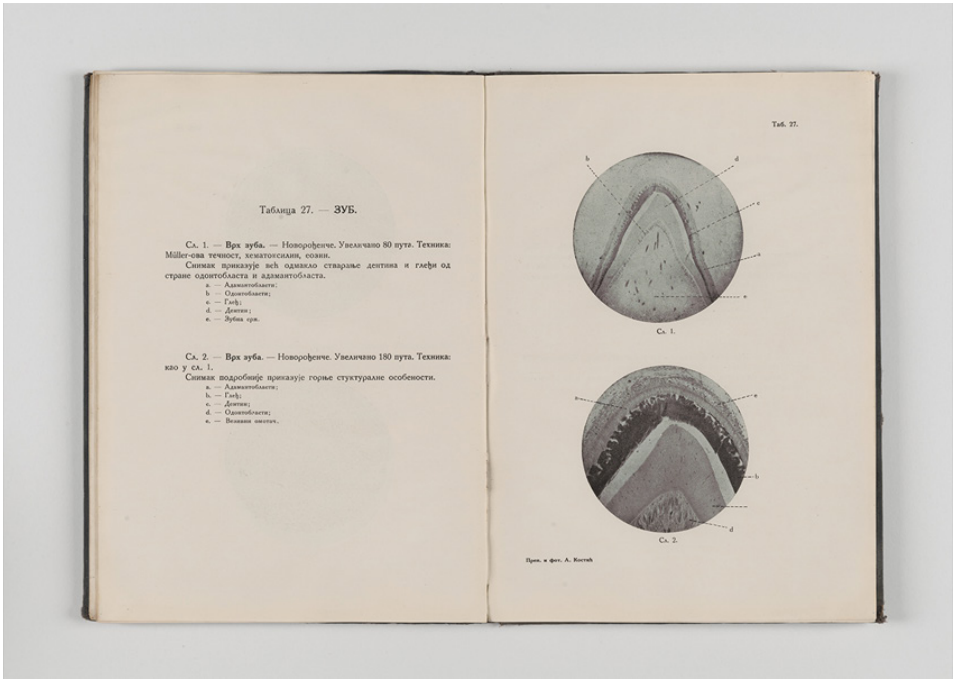
Slika 3. Tablica 27 – „Zub” (digitalizovano u AVA SANU)



Picture 2. Panel 5 – "Cell Division" (digitized in SASA AVA)

the used magnification, the type of fixative, the staining technique and usually the legend for the labeled structures were listed on the panels first, followed by detailed and often very comprehensive explanations. With this methodological approach, Kostić provided students with an excellent learning tool that not only facilitated their understanding and acquisition of the material, but could also serve them later during their study of pathohistology.

In addition to its significance at that time, the Atlas is, from today's perspective, very interesting for additional analysis from several aspects. Namely, it is known that Kostić dealt with medical terminology and that he was the author of the multilingual Medical dictionary. Certain terms used in the Atlas, which are no longer used today, such as: cytodieresis (cell division), semilunate wreath (equatorial plane), zone of linearly arranged cartilage (proliferative zone in cartilage), subthroat gland (thyroid gland), membranous sheets of connective tissue (connective lamellae), and numerous other terms



Picture 3. Panel 27 – "Tooth" (digitized in SASA AVA)

drugih životinja, sve do krupnih sisara poput konja i bikova. Kao primer specifične strukturne organizacije mehanoreceptora prikazao je i Herbstov i Grandrijev korpuskul u koži i kljunu patke. Herbstov korpuskul u koži ptica, inače, ima strukturu sličnu Vater-Pačinijevom korpuskulu kod ljudi.

Iz opisa preparata se može videti da je za fiksiranje uzoraka tkiva uglavnom koristio Buenovu tečnost, fiksativ koji je u praksu uveo njegov nekadašnji mentor, profesor Pol Buen. Danas se uglavnom koristi formalin, jer je praktičniji za rukovanje, jeftiniji, bezbedniji, a često i efikasniji (8,9). Najveći broj preparata prikazanih u Atlasu je obojen gvožđevitim hemateinom po Hajdenhajnu (*Heidenhain*), koji boji jedra crno, a citoplazmu sivkasto. Prema Kostićevim rečima, upravo su to bili tonovi, koje je bilo moguće savršeno reprodukovati na crno-belim mikrofotografijama (4). Međutim, za pojedine strukturne detalje, koji se nisu mogli jasno uočiti na tako obojenim preparatima, upotrebljena su druga histohemijska bojenja, od kojih se pojedina danas retko koriste, poput bojenja osmijumovom kiselinom (danas se koristi prevashodno u elektronskoj mikroskopiji) ili bojenje zlatnim hloridom sa mravljom kiselinom. Razlog njihovoj ređoj upotrebi u savremenoj histologiji leži najpre u činjenici da su tehnički zahtevnija, a sa druge strane zdravstveno nebezbedna. Pojedine histohemijske metode su zamenjene uvođenjem gotovih histohemijskih kitova, a sedamdesetih godina prošlog veka započeo je intenzivan razvoj imunohistohemije. Međutim, preparati obojeni imunohistohemijskim metodama još uvek nisu uključeni u studentske vežbe, zbog visoke cene antitela i vizualizacionih kitova, ali su zato fotografije dostupne online, na brojnim veb-stranicama.

Na kraju, možemo primetiti i da su pojedine mikrofotgrafije slabijeg kvaliteta, što i sam Kostić komentariše: „Nedostatak dovoljne jasnosti i oštrine dolaze od izvanredne teškoće da se ganglion snimi" (4). Može se pretpostaviti da su neki isečci tkiva bili neujednačene ili prevelike debljine, što je otežavalo izoštravanje slike na mikroskopu i posledično davalo lošiji kvalitet fotografija. Ovaj tehnički nedostatak na pojedinim mikrofotografijama ni u kom slučaju ne umanjuje kvalitet i značaj Atlasa u celini.

Mikrofotografski atlas normalne histologije je publikovan kao osma knjiga *Medicinske biblioteke*, koju je izdavala knjižara Napredak Armina Švarca, a uređivao profesor Kostić (4). Bio je to zaista izdavački i tehnički (štamparski) poduhvat za to vreme u koji su, pored izdavača, bila uključena još dva preduzeća – Grafički zavod Tipografija iz Zagreba (izrada klišea za štampu) i Štamparija „Makarije" iz Zemuna. Kostić se u predgovoru posebno zahvalio Švarcu zbog „materijalnih žrtava" kojima se „podvrgao" i izrazio zadovoljstvo zbog dobro obavljenog posla „udruženim snagama". Sagledavajući unapred dimenzije i značaj celog poduhvata, u predgovoru je izrazio nadu i da će aktuelni napredak u štamparstvu omogućiti dobru tehničku opremu „naših medicinskih izdanja tako potrebnih fakultetima u zemlji." (4). Sam Kostićev atlas je u metodološkom pogledu bio uzor za izradu još jednog važnog atlasa u međuratnom periodu – Atlasa patološke histologije, autora prof. Ksenofona Šahovića i doc. Dimitrija Tihomirova (1932) (10).

U posleratnom periodu nije bilo novih izdanja Mikrofotografskog atlasa normalne histologije, ali je Kostić objavio više dopunjenih izdanja udžbenika iz histologije i embriologije. Svi oni su bili bogato ilustrovani mikrofotografijama prvobitno objavljenim u Atlasu. Kostićevi udžbenici su bili u upotrebi decenijama. Naime, tek je 1977. godine objavljen udžbenik iz embriologije, autora profesora Steve Popovića (11), dok je 1981. izašao iz štampe udžbenik iz histologije grupe nastavnika sa Katedre (12). Pošto je „novi" udženik bio uglavnom opremljen crtežima, ponovo se pojavila potreba za histološkim atlasom, koji je zatim i publikovan 1988. godine (13) i do danas imao osam izdanja. Međutim, značaj tog atlasa poslednjih godina je umanjen velikom dostupnošću digitalnih fotografija, kako na zvaničnoj stranici Instituta, tako i na drugim veb-stranicama.

Zaključak

Mikrofotografski atlas normalne histologije Aleksandra Đ. Kostića iz 1925. godine predstavlja važan iskorak u istoriji medicinskog obrazovanja u Srbiji, a takođe je i reprezent tehničkog i pedagoškog napretka u prvim decenijama 20. veka. Povodom stogodišnjice od njegovog objavljivanja, u maju ove godine u Galeriji nauke i tehnike SANU organizovana je izložba *Pogled kroz okular*, na kojoj su predstavljeni Atlas i naučna zaostavština profesora Aleksandra Kostića.

constitute a valuable resource for examining the evolution of Serbian medical — and especially histological — terminology. Kostić's descriptions of the slide images are very vivid, rich in adjectives and markedly different from today's descriptions, which are brief, clear, and highly precise. An interesting example is the description of the epididymis: "This image shows the appearance of the epididymal canal remarkably clearly, when its cells are in full swing of secreting secretory granules" (4).

In contrast to modern practice in medical histology, which is based on the use of human material and samples obtained from the limited number of animal species, Kostić, in addition to human samples, also used samples of very different origins: from fish, frogs, snakes, hedgehogs, birds, sheep, dogs, rabbits and other animals, to large mammals, such as horses and bulls. As an example of the specific structural organization of mechanoreceptors, he presented Herbst and Grandry corpuscles in the skin and beak of a duck. Herbst corpuscle in the skin of birds has a structure similar to the Vater-Pacini corpuscle in humans.

From the description of the preparation, it can be seen that he mainly used Bouin's solution for fixing tissue samples, a fixative introduced into practice by his former mentor, Professor Paul Bouin. Formalin is mainly used today, because it is more convenient to handle, it is cheaper, safer and often more effective (8,9). The majority of specimens presented in the Atlas were stained with Heidenhain's iron hematoxylin, which stains the nuclei black and the cytoplasm grey. According to Kostić, these were the tones that could be perfectly reproduced on black-and-white microphotographs (4). However, for certain structural details, which could not be clearly seen on specimens stained in that way, other histochemical staining methods were used, some of which are rarely used today, such as staining with osmic acid (today it is primarily used in electron microscopy) or gold chloride staining with formic acid. The reason for their less frequent use in modern histology primarily lies in the fact that they are technically more demanding, and, on the other hand, pose health hazards. Certain histochemical methods were replaced by ready-to-use histochemical kits, and also, the intensive development of immunohistochemistry began in the 1970s of the last century. However, histological specimens stained by immunohistochemical methods have not been included in student exercises yet due to the high cost of antibodies and visualization kits; nevertheless, photographs are available online on numerous websites.

Finally, we can also notice that certain microphotographs are of lower quality, which Kostić himself comments: "The lack of sufficient clarity and sharpness comes from the extraordinary difficulty to take a picture of ganglion" (4). It can be assumed that some tissue sections were uneven or too thick, which made it difficult to focus the image on the microscope and consequently gave a lower quality of photographs. This technical defect in individual microphotographs did not diminish the quality and importance of the Atlas as a whole.

The Microphotographic Atlas of Normal Histology was published as the eighth book of *Medical Library*, which was published by the Armin Švarc's bookstore Napredak and edited by Professor Kostić (4). It was truly a publishing and technical (printing) undertaking for that time, in which, in addition to the publisher, two other companies were involved – Graphic Institute Tipografija from Zagreb (production of clichés for printing) and Printing House "Makarije" from Zemun. In the preface, Kostić especially thanked Švarc for the "material sacrifices" he made and expressed his satisfaction with the job that was done well by the "joined forces". By realizing the dimensions and significance of this undertaking in advance, he expressed his hope in the preface that the current progress in printing will enable good technical equipment "of our medical editions so needed by the faculties in our country." (4). Kostić's atlas itself was in the methodological sense a model for the creation of another important atlas in the interwar period – the Atlas of Pathological Histology, authored by Professor Ksenofon Šahović and Associate Professor Dimitrije Tihomirov (1932) (10).

In the post-war period, there were no new editions of the Microphotographic Atlas of Normal Histology, however, Kostić published several updated editions of Histology and Embryology textbooks. All of them were richly illustrated with microphotographs originally published in the Atlas. Kostić's textbooks were in use for decades. Namely, not earlier then 1977 a textbook on Embryology was published and it was authored by Professor Steva Popović (11) while in 1981, a textbook on

Konflikt interesa

Autor je izjavio da nema konflikta interesa.

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Histology was published by a group of authors from the Institute (12). Since the “new” textbook was primarily illustrated with drawings, the need for a histological atlas emerged again. As a result, one was published in 1988 (13) and has had eight editions to date. However, the importance of that atlas has been diminished in recent years because of the wide availability of digital photos, both on the official website of the Institute and on other websites.

Conclusion

The Microphotographic Atlas of Normal Histology by Aleksandar Đ. Kostić from 1925 represents an important step forward in the history of medical education in Serbia and is also representative of technical and pedagogical progress in the first decades of the 20th century. On the occasion of the centenary of its publication, the exhibition *A View Through the Eyepiece* was held in May this year at the Gallery of Science and Technology of the Serbian Academy of Sciences and Arts, showcasing the Atlas and the scientific legacy of Professor Aleksandar Kostić.

Competing interests

The author declared no competing interests.

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