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ТҮЙІН

Бұл мақалада қоршаған ортаға зиянсыз, экологиялық жағынан қауіпсіз, бактерицидтік қасиеті жоғары химиялық заттар сутегі асқын тотығы және йод негізінде отандық екі композициялық препараттар құрастырылып, олардың өндірістік жағдайда қолданылу режимін анықтау жұмыстарының нәтижелері келтірілді.

Құрастырылған препараттар негізінен профилактикалық дезинфекцияда қолдану жұмыстары іске асырылып, жануарлар мен құстардың арасында тарайтын әртүрлі инфекциялық аурулардың қоздырғыштарына қарсы жақсы әсер ететіндігіне зерттеулер нәтижесінде көз жеткізілді. Профилактикалық шаралар арқылы жануарлар мен құстардың денсаулығын сақтап, өнімділігін арттырып және олардан алынатын өнімдердің сапасын жақсартуға мүмкіндік жасайды.

Өндірістік зерттеу жұмыстары Алматы облысында орналасқан АҚ «Алатау Құс» құс шаруашылығы мен ЖШС «Амиран Агро» сүтті ірі қара шаруашылығы базасында жүргізілді. АҚ «Алатау Құс» құс шаруашылығында құрастырылған препараттардың йод негізіндегі дезинфекциялық композицияны қолданып, зерттеулер барысында оның 0,5 %-дық концентрациясы жақсы нәтижені көрсетіп, дезинфекция тиімділігі - көбікті тәсілге қарағанда, аэрозольді тәсілде – 78,4%-ды құрап жоғары екенін көрсетті. Ал ЖШС «Амиран Агро» сүтті ірі қара шаруашылығы кешенінде сутегі асқын тотығы негізіндегі дезинфекциялық композицияны қолдану нәтижесінде, препараттың 0,5%-ды концентрациясы көбікті тәсіл арқылы жүргізу кезінде дезинфекция тиімділігі – 80,2 %-ды құрап, аэрозольді тәсілге қарағанда жақсы көрсеткішке ие болды.

Өндіріс орындарында профилактикалық дезинфекцияны іске асыру үшін оны жүргізу мерзімі мен жиілігін анықтау жұмыстарына көңіл бөлінді. Қолданылған композициялық препараттардың (сутегі асқын тотығы және йод негізіндегі) нәтижесінде АҚ «Алатау Құс» құс шаруашылығында ет бағытында өсірілетін бройлер балапандарын ұстайтын құс қораларында дезинфекцияны жүргізу мерзімі – 20 тәулік болса, ал жиілігі 20 және 42 тәулік аралығында болып отыр. Ал ЖШС «Амиран Агро» сүтті ірі қара шаруашылығында дезинфекцияны жүргізу мерзімі – 30 тәулікті құрап, жиілігі жылына ай сайын жүргізіп отыруды қажет етіп отыр.

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Yertleuova B. O., master of Veterinary Sciences, **the main author**, https://orcid.org/0000-0003-1990-570X
NJSC «West Kazakhstan Agrarian Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, aliba.87@mail.ru
Ichshanova A. S., master of Veterinary Sciences, https://orcid.org/0000-0002-7344-5479
NJSC «West Kazakhstan Agrarian Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, aiman_86is@mail.ru
Gabdullin D. Y., master of Veterinary Sciences, https://orcid.org/_0000-0002-6523-1905
NJSC «West Kazakhstan Agrarian Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, dosya_gabdullin@mail.ru

Sidikhov B. M., candidate of Veterinary Sciences, https://orcid.org/0000-0001-6471-3737
NJSC «West Kazakhstan Agrarian Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, sidihovbm@mail.ru
Valiyeva Zh. M., PhD, https://orcid.org/0000-0002-8793-6383
NJSC «West Kazakhstan Agrarian Technical University named after Zhangir khan», Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, zhadrysha_85@mail.ru
Marat M. B., master of Veterinary Sciences, https://orcid.org/ 0000-0002-2844-5517
NJSC West Kazakhstan Agrarian Technical University named after Zhangir khan, Uralsk, st. Zhangir khan 51, 090009, Kazakhstan, magzhan.marat98@mail.ru

HEMATOLOGICAL AND BACTERIOLOGICAL INDICATORS OF COMPARATIVE ASSESSMENT OF METHODS OF CLOSING A MEDIAN LAPAROTOMY INCISION IN A PET

ANNOTATION

The article presents the results of a comparative study in the selection of suture types and materials that provide effective and periodic healing in order to avoid complications after closing laparotomy incisions along the white line during operations on the abdominal area of pets (dogs, cats) and to create conditions for the formation of a complete healing level of sutures in the operated area before sending them back to the habitat.

In the postoperative period, in the conditions of a veterinary clinic, additional hemotological and bacteriological studies were carried out during the healing of the incision in the period corresponding to the time of maintenance.

Blood hematolgic indicators on the day of the operation, the initial state of the blood was determined. The dynamics of hematological changes was observed on the 3rd, 5th, 7th days of the postoperative period, the bacteriological condition was determined during the operation and on the 7th day of control.

Hematological blood indicators obtained according to the results of the study showed the level of regenerative displacement in dogs and cats of all experimental groups. Due to the relatively selected suture type in terms of bacteriological condition, it was shown that the level of microbial contamination was also much lower compared to other research groups, since the closure of the wound surface in dogs and cats in the first experimental group was formed in a short time.

Key words: *ovariohysterectomy, dog, cat, laporotamia, microbial contamination.*

Introduction. Twisted dogs and cats are at high risk for living beings in the environment, as well as animals. In densely populated regions, the frequent occurrence of ownerless animals creates an environmentally unfavorable situation and negatively affects the social environment .

The main problem today is that the uncontrolled reproduction of ferrets and their settlement in urban areas can significantly affect the environmental and sanitary and epidemiological situation. Underestimating this fact can lead to unexpected, and even worse – irreversible consequences. For this reason, it is important to consider the possibility of reducing the reproduction rate by carrying out bio-decontamination work on pets [1-5].

While basic research on tissue Fusion is often carried out in humanitarian medicine, it is also being replaced in recent times by veterinary surgery. At the same time, morphological and functional differences in the body of humans and animals, features of the diversity of inflammatory reactions, possibilities of Tissue Regeneration, etc. are not taken into account [6-10].

According to a number of authors, in medicine and veterinary medicine, after suturing surgical incisions of the abdominal wall, complications such as cracks, complete misalignment of the edges due to swelling of sutured tissues, abscesses and cavities in the area of suture material, purulent inflammation occur, which leads to suture failure [11-14].

In the field of Veterinary Surgery, purulent complications of wounds are very common, with a complication rate of up to 50.0%.

For practical purposes, clinical studies have shown that the complication rate in postoperative animals is up to 14.6% based on the closure of incisions after abdominal operations [15-17].

In practice in Human Medicine, "cosmetic" sutures are often used to sew incisions that are made to the abdominal cavity. The most popular and often used is the multi – row Holsted stitch or Holsted-Zoltan stitch. The main difference between these stitches and other types of stitches is that they give a good effect due to the correct formation of the skin and skin layers [18-20].

Based on these studies, the variety of sutures used in veterinary practice, the patterns of healing when closing incisions, and the smooth formation of the skin cover are the reasons for the correct choice of these methods.

In this regard, the main purpose of our research is to select suture types and materials that form effective and short - term healing in order to avoid complications after closing median laparotomy incisions in the abdominal area during ovariohisterectomy and embroidery of stray dogs and cats in the Uralsk region and to create conditions for complete closure of sutures in the operated area in the period before.

Research materials and methods. The research work was carried out in the laboratories of microbiology, blood tests and the Department of "Surgery" of the Zhangir Khan West Kazakhstan agrarian and Technical University "Zhardem-Vet". The research was aimed at creating conditions for short-term and cosmetically correct skin formation of laporotomy incisions made along the white line for dogs and cats who arrived on the basis of the project" services for bio-decontamination and embroidery of dogs and cats in the Uralsk region".

Clinical, hematological, bacteriological studies of the existing suture types in surgery by world and domestic scientists were selected for the experimental work. The study selected the methods of re Erden-Multanovskaya (continuous), Holsted (medical cosmetic, continuous) and best suture. The experiment included 15 heads of dogs (weighing 15-17 kg) and 18 heads (3-5 kg) of cats aged 7 months to 6 years with clinically healthy, no visible pathological symptoms (Figure 1).

Figure 1 – Animals taken in the study

The dogs that were taken for the experimental study were ferocious dogs, and the Cats had an owner. At all stages of the experimental study, dogs and cats were kept in separate rooms of the ESPC "Zhardem-vet". The study animals were fed twice a day, there was no restriction on watering. Before the start of the experiment, all pets underwent a clinical examination (thermometry, heart rate and breathing). In dogs and cats, an incision in the abdominal area was performed surgically (ovariohysterectomy) on the organs of the reproductive system.

Before the operation, the pet was kept on a hungry diet of 10-12 hours. The animals in the study were attached to the operating table with a dorsal part (dorsal). The operating area in the abdominal area of animals was processed according to the method proposed by N. I. Pirogov.

During the operation, the rules of asepsis and antiseptics were observed, general anesthesia (anesthesia) was carried out with the drug "Xylanit".

A median incision was made on the organs of the dog-cat reproductive system 2 cm below the navel in the lower area.

After the ovariohysterectomy was performed, the surgical sutures for the examined pet were closed in the following combinations: First experimental group: Reverden-Multanovskaya + continuous Holsted seam (5-Headed Dog + 6-headed cat); Second experimental group: Reverden-Multanovskaya + best stitch (5-Headed Dog+ 6-headed cat); Third experimental group: Best+ Best stitch (5-Headed Dog + 6-headed cat). In the postoperative period, in the conditions of a veterinary clinic, additional hemotological and bacteriological studies were carried out during the healing of the incision in the period corresponding to the time of Animal Care.

Hematological blood values of dogs and cats were checked on the day of the operation. The dynamics of changes in the form elements of the blood was determined on the 3rd, 5th, 7th days after the operation. Blood samples were taken from the vasculature of the forelimb (V. cephalicaantebrahii). Hematological indicators of blood were carried out on the Mindray vs-2800 Vet semi-automatic hematological analyzer.

Bacteriological examination was taken from the area of closure of the median laparotomy incision on the day of the operation. The second time the sample was taken by biopsy on the 7th day after the operation. The results of Bacteriological Analysis were carried out according to the methodology of V. V. Menshikov (Figure 2).

Figure 2 – Sampling from the suture area for bacteriological examination

To determine the degree of microbial contamination of the sutured areas, the method of studying the culture property (sowing on a culture medium) was used.

Research results and analyzes. The study of the physico-chemical properties, Morpho-biochemical composition of the animal's blood makes it possible to assess regenerative or degenerative movements in the body of the operated animal and predict the possibility of developing complications (S. P. Kovalev, 2004; M. A. Medvedeva, 2013).

Compliance with the rules of asepsis and antiseptics during the operation affects the indicators of blood samples. This, in turn, indicates changes in the blood before and after surgery, depending on the condition of the animals. The results of hematological studies of dogs and cats in three experimental groups showed a regenerative change in the data obtained from the study. On the 7th day of the postoperative period, it was recorded that the hematological blood values in dogs and cats of all experimental groups did not exceed the reference values. The values of hemoglobin, erythrocytes, leukocytes, ESR were not significantly core in the postoperative period (table 1,2).

Table 1 – Hematological indicators of feline blood in the postoperative periods

Study dates	RES, mm / s	hemoglobin, g / l	Erythrocytes, 10^{12}/ l	Leukocytes, 10^{9}/ l	B	E	Neutrophils		L	M
							RN	SN		
1st experimental group										
Day of operation	4,7±0,30	120,3±1,71	5,7±0,18	8,7±0,36	0	3,5±0,28	5,8±0,29	43,7±0,43	44,5±0,76	2,5±0,24
3	5,5±0,24	118,1±1,32	5,5±0,13	9,0±0,43	0	3,3±0,22	5,6±0,26	43,3±0,40	45,1±0,67	2,7±0,28
5	6,2±0,31	120,1±0,91	5,6±0,15	10,5±0,37	0	6,3±0,30	7,9±0,30	44,7±0,19	37,2±0,49	3,9±0,21
7	6,2±0,41	122,3±1,52	6,3±0,29	10,4±0,41	0	5,4±0,36	8,6±0,23	44,7±0,35	37,3±0,85	4,0±0,27
2nd experimental group										
Day of operation	4,9±0,27	121,8±1,42	5,7±0,17	8,2±0,32	0	5,7±0,52	6,7±0,27	41,3±0,37	43,8±0,57	2,2±0,72
3	5,8±0,33	117,8±1,43	5,5±0,15	9,6±0,47	0	4,3±0,48	6,3±0,50	42,7±0,44	44,7±0,98	2,0±0,32
5	6,2±0,34	118,4±0,94	5,6±0,12	10,3±0,35	0	6,9±0,26	8,3±0,16	44,1±0,20	37,0±0,27	3,7±0,12
7	6,5±0,53	121,0±1,56	6,7±0,26	10,2±0,55	0	6,7±0,39	8,0±0,42	43,7±0,57	38,8±1,35	2,8±0,31
3rd experimental group										
Day of operation	4,8±0,18	121,2±0,92	5,8±0,17	8,1±0,35	0	4,6±0,53	6,5±0,30	42,4±0,36	44,5±0,54	2,0±0,23
3	5,5±0,20	118,9±1,03	5,4±0,12	9,9±0,34	0	4,5±0,55	6,0±0,34	42,5±0,51	44,7±0,71	2,3±0,29
5	6,5±0,41	118,1±0,80	5,6±0,13	10,3±0,42	0	6,1±0,34	8,5±0,14	44,6±0,26	36,9±0,34	3,9±0,14
7	4,8±0,18	121,2±0,92	5,8±0,17	8,1±0,35	0	5,7±0,45	7,8±0,41	44,4±0,45	38,5±1,22	3,6±0,28

Table 4 – Hematological indicators of dog blood in the postoperative periods

Study dates	RES, mm / s	hemoglobin, g / l	Erythrocytes, 10^{12}/ l	Leukocytes, 10^{9}/ l	B	E	Neutrophils		L	M
							RN	SN		
1st experimental group										
Day of operation	4,7±0,30	120,3±1,71	5,7±0,18	8,7±0,36	0	3,5±0,28	5,8±0,29	43,7±0,43	44,5±0,76	2,5±0,24
3	5,5±0,24	118,1±1,32	5,5±0,13	9,0±0,43	0	3,3±0,22	5,6±0,26	43,3±0,40	45,1±0,67	2,7±0,28
5	6,2±0,31	120,1±0,91	5,6±0,15	10,5±0,37	0	6,3±0,30	7,9±0,30	44,7±0,19	37,2±0,49	3,9±0,21
7	6,2±0,41	122,3±1,52	6,3±0,29	10,4±0,41	0	5,4±0,36	8,6±0,23	44,7±0,35	37,3±0,85	4,0±0,27
2nd experimental group										
Day of operation	4,9±0,27	121,8±1,42	5,7±0,17	8,2±0,32	0	5,7±0,52	6,7±0,27	41,3±0,37	43,8±0,57	2,2±0,72
3	5,8±0,33	117,8±1,43	5,5±0,15	9,6±0,47	0	4,3±0,48	6,3±0,50	42,7±0,44	44,7±0,98	2,0±0,32
5	6,2±0,34	118,4±0,94	5,6±0,12	10,3±0,35	0	6,9±0,26	8,3±0,16	44,1±0,20	37,0±0,27	3,70,12
7	6,5±0,53	121,0±1,56	6,7±0,26	10,2±0,55	0	6,7±0,39	8,0±0,42	43,7±0,57	38,8±1,35	2,8±0,31
3rd experimental group										
Day of operation	4,8±0,18	121,2±0,92	5,8±0,17	8,1±0,35	0	4,6±0,53	6,5±0,30	42,4±0,36	44,5±0,54	2,0±0,23
3	5,5±0,20	118,9±1,03	5,4±0,12	9,9±0,34	0	4,5±0,55	6,0±0,34	42,5±0,51	44,7±0,71	2,3±0,29
5	6,5±0,41	118,1±0,80	5,6±0,13	10,3±0,42	0	6,1±0,34	8,5±0,14	44,6±0,26	36,9±0,34	3,9±0,14
7	4,8±0,18	121,2±0,92	5,8±0,17	8,1±0,35	0	5,7±0,45	7,8±0,41	44,4±0,45	38,5±1,22	3,6±0,28

In all research groups of blood samples in the last days of the study, the indicator of regenerative shift was observed for blood indicators. In particular, in the 3rd and 7th postoperative days, there was an increase in the leukocyte index, which, in comparison with the initial data, did not exceed physiological values. In surgical manipulations, after injuries, as well as in other cases of a non-inflammatory nature, the possibility of leukocytosis, the presence of neutrophilia of a shift to the left, lymphopenia and eosinopenia has been proven.

In tissue regeneration, inflammatory processes in tissues, lymphocytes perform nutritional and reparative functions. In this regard, the lymphopenia present in the blood of dog-cats of all experimental groups on the 3rd and 7th days after the operation was not higher than the threshold values, and is also associated with the ability of lymphocytes to migrate through blood vessels to the skin and subcutaneous tissue.

In the course of assessing the bacteriological state of the area of incisions in the abdominal area of dogs and cats taken for research, a number of results were obtained.

Open mechanical damage in animals, i.e. wound infection, can be caused by the formation of any microbial flora, including in an operational wound, the quantitative and qualitative significance of each microorganism increases [15].

In the case of mixed microbial contamination, the pathogenicity of microorganisms increases when microflora enters the wound. Bacteriological studies were carried out to monitor the state of wound microflora in the area of wound closure in the abdominal area. The results of the study are described in Table 3.

Table 3 – Results of bacteriological control of the closure area of median laparotomy incisions in dogs and cats (CFU)

Groups/ study days	In cats (n=18) i			In dogs (n=15)		
	1-experimental group	2 - experimental group	3-experimental group	1 - experimental group	2-experimental group	3-experimental group
Date of the operation	Spore Rod (saprophytic)-10^1-10^2	Spore Rod (saprophytic)-10^1-10^2	Spore Rod (saprophytic)–10^1	Spore Rod (saprophytic)-10^1	Spore Rod (saprophytic)-10^2	Spore Rod (saprophytic)-10^1
	Staphylococcus	*Staphylococcus*	*Staphylococcus*	*Staphylococcus*	*Staphylococcus*	*Staphylococcus*
	epidermidis–10^2	*epidermidis–10^1-10^3*	*epidermidis–10^1-10^2*	*epidermidis–10^1-10^2*	*epidermidis–10^1-10^2*	*epidermidis–10^1*
	E.coli–10^2	Diphtheroids–10^1	Diphtheroids—10^1	Micrococcus–10^1	*E.coli–10^2*	Diphtheroids—10^1
		Micrococcus–10^1	*Enterococcus–10^1*	*Enterococcus–10^2*	*Enterococcus–*	*Enterococcus–*
					10^1-10^2	*10^2-10^3*
		Sarcina–10^2	*Staphylococcus*			*E.coli–10^1*
			aureus–10^2			
						Streptococcus -10^1
Day 7	Spore Rod (saprophytic)–10^1	*Staphylococcus epidermidis–10^1*	*Staphylococcus epidermidis–10^1*	Spore Rod (saprophytic)-10^1	Spore Rod (saprophytic)—10^1	*Staphylococcus epidermidis–10^1-10^2*
	Diphtheroids –10^1	*Staphylococcus saprophyticus–10^1*	*Pseudomonas aeruginosa–10^1*	*Staphylococcus epidermidis–10^1*	*Staphylococcus saprophyticus–10^1*	
	Streptococcus – 10^1	*Enterococcus–10^2*				

According to the data in the table, in the first experimental groups of dog-cats, in the postoperative period, on the tissue surfaces in the wound channel, microflora was present in etiologically small concentrations. At the same time, during the initial study in cats of the first experimental group, saprophytic, conditionally pathogenic representatives of the skin and intestinal flora, respectively, spore Rod 10^1-10^2 CFU, *Staphylococcus epidermidis* 10^2 CFU, *E. coli* 10^2 CFU found. On the 7th day, representatives of the skin and air flora were identified: diphtheroids - 10^1 CFU, spore Rod 10^1 CFU, *Streptococcus* 10^1 КТБ.

In the first experimental group in dogs, the presence of representatives of the air flora on the day of the operation was observed: *Micrococcus* 10^1 CFU, *Staphylococcus epidermidis* 10^1-10^2 CFU, spore

Rod 10^1 CFU, intestinal flora: enterococci 10^2 CFU. On the 7th day, only representatives of the air and skin flora were identified: *Staphylococcus epidermidis* 10^1 CFU, spore Rod 10^1 CFU.

In the second experimental groups in cats and dogs, representatives of air and skin microflora were identified on the day of the operation: spore Rod 10^1-10^2 CFU, *sarcina* 10^2 CFU, *Staphylococcus epidermidis* 10^1-10^3 CFU, diphtheroids 10^1 CFU, *Micrococcus* 10^1 CFU. On the 7th day *Staphylococcus epidermidis* 10^1 CFU, *Staphylococcuss aprophyticus* 10^1 CFU, *Enterococcus* 10^2 CFU determined.

Staphylococcus epidermidis on the day of surgery in the second experimental group of dogs 10^1-10^2 CFU, spore Rod 10^2 CFU, *Enterococcus* 10^1-10^2 CFU, *E. coli* 10^2 CFU it turned out that there is. On the 7th day *Staphylococcus saprophyticus* 10^1 CFU and Spore Rod 10^1 CFU determined.

In animals of the second experimental groups of cats and dogs at different stages of the study, there is a presence of Saprophytic and conditionally pathogenic microflora, which is expressed associatively in the wound channel. In this case, the concentration of isolated microorganisms reached 10^1-10^3, which is much higher than that of animals from the first experimental groups of cats and dogs.

In cats of the third experimental group, representatives of the saprophytic air and skin flora were identified on the day of the operation: *Staphylococcus epidermidis* 10^1-10^2 CFU, spore Rod 10^1 CFU, diphtheroids 10^1 CFU, *Staphylococcus aureus* 10^2 CFU – in one case and representatives of the intestinal flora: *Enterococcus* 10^1. 7th day of the postoperative period *Staphylococcus epidermidis* 10^1 CFU, *Pseudomonas aeruginosa* 10^1 CFU in one case, it was observed to be.

In the third experimental groups of dogs, the following were identified: *Staphylococcus epidermidis* 10^1 CFU, Spore Rod 10^1 CFU, diphtheroids 10^1 CFU, *Streptococcus green* 10^1 CFU, *E. coli* 10^1 CFU, *Enterococcus* 10^2-10^3 CFU. 7th day of *Staphylococcus epidermidis* 10^1-10^2 CFU determined.

In animals of the third experimental groups, at different stages of the study, the presence of Saprophytic and conditionally pathogenic microflora in the wound channel was observed, expressed associatively in comparison with the second experimental groups. In this case, the isolated microorganisms reached the same concentration of 10^1-10^3 CFU as in the second experimental groups, but much higher than in the animals of the first experimental groups.

In general, in all the studied methods of closing the median laparotomy incision in cats and dogs, a conditionally pathogenic microflora was observed. Due to the relatively selected suture type, the closure of the wound surface in dogs and cats in the first experimental group was formed in a short time, the level of microbial contamination was also shown to be much lower compared to other research groups.

Conclusion. Hematological blood indicators after the insertion of an abdominal incision along the white line (median) in the studied pet showed the level of regenerative displacement in dogs and cats of all experimental groups. In particular, in the 3,7th postoperative day, there was no deviation of leukocytes and neutrophils from the level of threshold values in comparison with the initial data.

In assessing the bacteriological state of the area of abdominal incisions of dogs and cats in the experimental groups taken for research, conditionally pathogenic microflora was manifested in all the studied methods of covering the incisors. However, due to the relatively selected suture type, the closure of the wound surface in the dog-cats of the first experimental group was formed in a short time, the level of microbial contamination was also shown to be much lower compared to other research groups.

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РЕЗЮМЕ

В статье представлены результаты сравнительного исследования в ходе выбора виды швов и шовных материалов, обеспечивающих эффективное и поэтапное заживление, с целью исключения случаев осложнений после закрытия лапаротомных разрезов вдоль белой линии в ходе операций на брюшной полости домашних животных (собак, кошек) и создания условий

для формирования полного уровня заживления швов в зоне операции в период до отправки обратно в среду обитания.

В условиях ветеринарной клиники послеоперационном периоде, в ходе заживления места разреза дополнительно проводились гемотологические и бактериологические исследования.

В день операции определялось гематологические показатели крови. Динамика гематологических изменений контролировалась на 3-й, 5-й, 7-й день послеоперационного периода, бактериологическое состояние определялось в ходе операции на 1-й и 7-й день последующего наблюдения.

Гематологические показатели крови, полученные по результатам исследования, показали уровень регенеративного сдвига у собак и кошек всех экспериментальных групп. Из-за относительно выбранного типа шва по бактериологическому состоянию закрытие раневой поверхности у собак и кошек в первой экспериментальной группе показало, что уровень микробного загрязнения также был намного ниже по сравнению с другими исследуемаемыми группами.

ТҮЙІН

Мақалада үй жануарларының (ит, мысықтар) құрсақ аумағында жүргізілетін операциялар барысында ақ сызық бойымен лапаротомиялық тіліктерді жабудан кейінгі асқыну жағдайларын болдырмау және мекендеу ортасына кері жібергенге дейінгі уақытта операция жасалынған аймақтағы тігістердің толықтай жазылу деңгейінің қалыптасуына жағдай жасау мақсатында тиімді, әрі қысқа мерзімде жазылуды қамтамасыз ететін тігіс түрлері мен материалдарын таңдау барысындағы салыстырмалы зерттеу нәтижелері ұсынылып отыр.

Операциядан кейінгі кезеңде ветеринарлық клиника жағдайында күтіп-бағу уақытына сәйкес кезеңде тіліктің жазылуы барысында қосымша гемотологиялық және бактериологиялық зерттеулер жүргізілді.

Қанның гематолгиялық көрсеткіштері операция жасалатын күні қанның бастапқы жағдайы анықталды. Гематологиялық өзгерістердің динамикасы операциядан кейінгі кезеңнің 3-ші, 5-ші, 7-ші күндерінде бақыланса, бактериологиялық жағдайы операция барысында жане бақылаудың 7-ші тәулігінде анықталды.

Зерттеу нәтижелері бойынша алынған қанның гематологиялық көрсеткіштері барлық тәжірибелік топтардың ит-мысықтарында регенеративті жылжу деңгейін көрсетті. Бактериологиялық жағдайы бойынша салыстырмалы түрде таңдалған тігіс түріне байланысты бірінші тәжірибелік топтағы ит-мысықтардағы жара бетінің жабылуы қысқа мерзімде қалыптасқандықтан, микробтық ластану деңгейі де басқа зерттеу топтарымен салыстырғанда әлдеқайда төмен екендігін көрсетті.

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Тагаев О.О., доктор ветеринарных наук, доцент Института ветеринарной медицины и животноводства, **основной автор,** https://orcid.org/ 0000-0002-1980-4936
НАО «Западно-Казахстанский аграрно-технический университет имени Жангир хана», г. Уральск, ул. Жангир хана 51, 090009, Казахстан, orynbay_tagayev@mail.ru
Айтпаева З.С., доктор философии (PhD), и.о. доцент Института ветеринарной медицины и животноводства, https://orcid.org/ 0000-0002-4814-2804
НАО «Западно-Казахстанский аграрно-технический университет имени Жангир хана», г. Уральск, ул. Жангир хана 51, 090009, Казахстан, zulya08_@mail.ru
Барахов Б.Б., кандидат ветеринарных наук, ассоциированный профессор кафедры «Ветеринарная экспертиза и гигиена», https://orcid.org/0000-0003-3302-8707
НАО «Казахский национальный аграрный исследовательский университет», г. Алматы, Абая 28, 050000, Казахстан, baxa_kaz00@mail.ru
Шектібаев М.Д., магистр ветеринарных наук, преподаватель Института ветеринарной медицины и животноводства, https://orcid.org/0009-0009-9909-5671