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Surgical approach choice and efficiency of complementary therapies in treatment of pilonidal cyst: Meta-analysis and treatment algorithm

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ABSTRACT

The article presents literature review (website PubMed is used) on the advantages and disadvantages of one-stage and two-stage surgical treatment of pylonidal cyst, *meta*-analysis of published data on the efficiency of gentamicin-impregnated collagen implants, vacuum-assisted wound closure and platelet growth factors in treatment of this pathology. Treatment results of 87 patients with pilonidal cyst with postoperative observation period from 1 to 5 years have been analyzed. Algorithm of therapeutic approach selection for such patients depends on the pathological process character.

1. Introduction

Pilonidal cyst (pilonidal sinus, sacrococcygeal fistula) – congenital disease associated with a developmental defect in the caudal end of the embryo, which results in formation of epithelium-lined tract under the intergluteal cleft skin [8]. Pilonidal cyst is a common proctologic disease occurring in 3–6 % of the population (incidence 26 per 100,000 of population) among young working-age people aging from 15 to 30. This pathology is much more often observed in men, in women – 2–2.5 less often [6,14,17,21].

Published literature describes different types of surgical treatment of pilonidal cyst in acute phase which can be subdivided into two groups: one-stage and two-stage [2,4,21]. One-stage surgeries include oncotomy, excision of pilonidal cyst followed by post-operative wound air-dressing or complete suturing with lavage drainage. Two-stage surgeries include oncotomy and pilonidal cyst excision in 4–6 days followed by different types of wound closure. Complete suturing of wound after cyst excision can be performed using different stitch modifications. The disadvantage of this method is in frequent complications (up to 54 %) and relapses lengthening the period of treatment and temporary disability. Partial wound closure method after pilonidal cyst excision has been described. The disadvantage of this method lies in complications in the immediate (21 %) and remote (10 %) postoperative period, long periods of wound healing (1 month and more). There is another method which consists in suturing of wound edges after pilonidal cyst excision to the wound bed and its modifications. The disadvantages of this method also include frequent complications in the immediate postoperative period in the form of wound abscess (20–30 %), long periods of temporary disability (around 1 month). Yet another method of wound closure after pilonidal cyst excision is suturing with U-shaped stitches, however, it also has some disadvantages, as it is sophisticated and in 3–4 % of observations postoperative complications and relapses have been noted [1,3,4].

The disadvantage of wound air-dressing without suturing after radical excision of pilonidal cyst is long healing period – 68–72 days, whereas the advantage of this method is the minimal frequency of relapses and good long-term results [1]. Wound infections occur in 24 % of patients after surgical excision of pilonidal cyst with suturing of the primary wound [23].

When one-stage surgical procedure is chosen some authors recommend using gentamicin impregnated collagen implants that are highly effective in other types of pathologies to reduce the risk of infectious wound complications [18–20]. However the *meta*-analysis of the published data on the use of such implants in the pilonidal cyst surgery demonstrates contradictory results (Table 1) [9,16,23,24,26,27]:

Research results of vacuum-assisted dressings efficiency in treatment of open wounds in two-stage tactics are also ambiguous (Table 2) [5,7,11–13,15,22]:

Also to stimulate regenerative processes in long-existing

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Table 1
Review of scientific publications: application experience of gentamicin-containing collagen implant in pilonidal cyst surgery.

Author, year, level of evidence	Medicinal product, method	Study design, patients characteristics	Comparison groups characteristics	Results
Vogel [26]	Collatamp®	Randomized controlled study	N = 80	Primary wound healing:
Level 1	1–4 implant depending on the wound size.	Patients who underwent pilonidal cyst exsicion		Group I – 35/40
	Suturing with 1–2 stitch layers.		Group I: n = 40 gentamicin-collagen implant	Group II – 14/40
				(p < 0,001).
				secondary:
				Group I – 5/40
			Group II: n = 40 control	Group II – 25/40 (p < 0,001).
				Complications (Abscesses):
				Group I – 3/40
				Group II – 20/40 (p < 0,001).
				Relapse (1 year):
				Group I – 0/40
				Group II – 0/40
Holzer [16]	Septocoll®	Randomized controlled study	N = 103	Wound healing:
Level 1	1 implant of size 5 × 8 cm	Patients who underwent pilonidal cyst exsicion	Group I: n = 51 gentamicin-collagen implant, primary closure	Group I – 17 days
	Suturing with 1–2 stitch layers			Group II – 68 days
				(p = 0.0001).
				Average bed days:
			Group II: n = 52 control – open treatment	Group I: 9 (1–24) days
				Group II: 10 (1–13) days.
				Relapse (26 weeks):
				Group I – 1/51
				Group II – 0/52
Rao [24]	Collatamp®	Randomized controlled study	N = 60	Wound healing after 4 weeks:
Level 1	1–2 implant depending on the wound size.	Patients who underwent pilonidal cyst exsicion	Group I: n = 30 gentamicin-collagen implant, primary closure	Group I – 27/30
	Suturing with 2 stitch layers.		Group II: n = 30 control – open treatment	Group II – 4/30 (p < 0,001).
				Average wound healing period:
				Group I – 10 days
				Group II – 50 days
				(p = 0.001).
				Average bed days:
				no statistically significant differences have been detected
Andersson [9]	Collatamp®	Randomized controlled study	N = 159	Wound abscess: after 2 weeks:
Level 2	1 implant.	Patients who underwent pilonidal cyst exsicion	Group I: n = 82 gentamicin-collagen implant, primary closure	Group I – 18/82
	Suturing with 1 stitch layer.			Group II – 20/77 (n.s.)
				after 3 months:
			Group II: n = 77 control, primary closure	Group I – 2/82
				Group II – 0/77 (n.s.)
				Wound healing: after 3 months:
				Group I – 63/82
				Group II – 51/77 (n.s.)
				after 1 year:
				Group I – 70/82
				Group II – 69/77 (n.s.)
				Relapse within one year:
				Group I – 9/82
				Group II – 9/77 (n.s.)
				Repeated operations:
				Group I – 8/82
				Group II – 3/77 (n.s.)
Yetim [27]	Collatamp®	Randomized controlled study	N = 80	Primary wound healing:

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