Original article

Frequency of wound infection after appendectomy

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Abstract:

Introduction: One of the risk factors for wound infection techniques, how and when to close the wound after surgery. Various methods have been proposed for closure this study, we studied the wound infection after appendectomy in 2015.

Methods: This study was a descriptive study in general surgery ward of Imam Reza Hospital during 2014-2015. The study population of 208 patients who were divided with a clinical diagnosis. The patients in four time of the third, seventh days, one and three months after surgery were followed in the surgeon's office.

Findings: In this study, 126 patients (60.7 %) were male and 81 patients (39.3%) were female. The overall average age was 10.53 ± 32.48 years. 4.9% of patient had infections and 95.1% had not infection.

Conclusion: According to the results, the prevalence of wound infection after is not in high level and it is recommended to keep lower using the precious sterilization and good antibiotic therapy.

Keywords: appendectomy, infection, wound, appendix

Introduction:

Appendectomy is one of the most common emergency surgical procedures in the world (1, 2). The most common postoperative complication after appendectomy is superficial surgical site infection (SSI) (3), despite the routine use of prophylactic antibiotics that target both aerobic and anaerobic organisms, infection of the operative incision is the most common cause of morbidity after appendectomy (4), which infection especially occurs in complicated appendicitis (i.e., gangrenous, and ruptured appendicitis) (5). Superficial SSI causes readmission, increases the length of stay, nursing care, and prolonged antibiotic treatment (6, 7). Consequently, this results in an increase of both direct and indirect medical costs to both health care providers and patients (6, 7). Postoperative SSI can be minimized by reducing risk factors (e.g., smoking, or glucose control) (8, 9),or use of established preventive procedures (e.g., prophylactic antibiotics, avoid surgical drain, and unnecessary hair removal) (8). Closure of the wound for a contaminated wound also affected SSIs (8, 10, 11). The highest prevalence of appendicitis is in the second

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and third decades of life. Many patients, especially young people's demand for minimum scarring after the surgery, one of the most important criteria for beauty scarring after surgery is the width of scar (12). Therefore, regarding the importance of this subject, this study was to evaluate the wound infection after appendectomy in 2015.

Methods:

This study was descriptive study that was extracted from a randomized clinical trial (IRCT2014010616104N1) in general surgery ward of Imam Reza Hospital during the years 2012-2013. The population of the study consisted of 208 patients who received a clinical diagnosis of appendicitis and underwent appendectomy by a surgeon. Intervening variables such as the skill of the surgeon, contamination during the operation and technical conditions were identical in both groups. Patients with complicated appendicitis were also affected by some diseases such as acquired immune deficiency and diabetes and had taken immune-suppressant drugs or the ones with no possibility to be followed up were excluded.

In all patients, before the surgery, the spot was cut and opened under general anesthesia. Patients being cut in the Mcburny underwent appendectomy operation. Patients were followed up in the surgeon's office for 4 times, i.e. the third and seventh days as well as one and three months after surgery. In visiting patients, the surgeon examined the patients for symptoms of infection and the presence of purulent discharge from the wound, pain, warmth at the site, swelling and erythema, and fever. The final diagnosis of infection was upon the surgeon based on the infection definition and symptoms. Patients who have had one of the complication or infection were considered positive. Then, the relevant information was obtained from each patient and data were statistically analyzed through SPSS16. For the variable age, Mann-Whitney U, and independent t-test were run and X2 test was used for other variables.

Findings:

The study was conducted in 126 patients (60.7 %) were male and 81 patients (39.3%) were female. 102 cases (49.5%) under 30 years, 94 patients (45.6%) between 30 and 50 years and 10 patients (4.9%) were between 50 and 75 years. The overall average age was 10.53 ± 32.48 years. In this study, 102 patients (49.5%) Subcutaneous tissue was not closed and in 104 patients (50.5%), subcutaneous tissue, blocked a total of 10 patients (4.9%) had infections and 196 cases (95.1%) had not infection (table 1).

Discussion:

In this study, 60.7% of patients were male and 39.3% were female. In terms of gender, no statistically significant relationship was found between both groups with and without closure of subcutaneous tissue. In Qaderi's study (12), 61.2% and 38.8% of patients were male and female, respectively. There was no significant difference between two groups regarding gender. In Jafari's study (13), 46 % and 54% of participants were female male in the first group. Considering the second group, 47% and 53% were female and male, respectively. The gender of two groups showed no significant difference. The results are consistent and match with the results of the current study.

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The mean age for the group without closure of subcutaneous tissue was 32.73+ 10.86 years. This value was equal to 32.24 + 10.25 years for the group with closure of subcutaneous tissue. In this regard, there was no statistically significant relationship. In Qaderi's study (12), the mean age of patients in the interrupted suture in appendectomy wounds group was 25.32 years and the mean of the discrete suture in appendectomy wounds group was 24.08 years and there was no significant difference between the two groups with regard to age. In Jafari's study (13) , the mean age of patients in the transdermal and subcuticular groups was 20.85 ± 6.7 and 20.61 ± 6.58 years, respectively. No significant difference was observed in this regard. Therefore, gender and age distribution was similar to studies conducted inside and outside the country. Of these patients, 4.9% had infections and 95.1% had no infection. Of those who had infection, 5.9% and 3.8% were without and with the closure of the subcutaneous tissue, respectively. Of those patients with no infection, 94.1 % and 96.2% were without and with the closure of the subcutaneous tissue, respectively.

Conclusion:

According to the results, the prevalence of wound infection after is not in high level and it is recommended to keep lower using the precious sterilization and good antibiotic therapy. However, results from laboratory studies in this area indicate that the closure of the subcutaneous layers of wound infection raises the dead and not closing it also creates space and increase the likelihood of prescribed hematoma and as a result infection.

References:

1. Lee JH, Park YS, Choi JS. The Epidemiology of Appendicitis and Appendectomy in South Korea: National Registry Data. Journal of Epidemiology. 2010;20(2):97-105.
2. Noudeh YJ, Sadigh N, Ahmadnia AY. Epidemiologic features, seasonal variations and false positive rate of acute appendicitis in Shahr-e-Rey, Tehran. International journal of surgery. 2007;5(2):95-8.
3. Jaffe B, Beger D. Schwartz's Principles of Surgery: McGraw-Hill Books; 2010.
4. Bahar MM, Jangjoo A, Amouzeshi A, Kavianifar K. Wound infection incidence in patients with simple and gangrenous or perforated appendicitis. Archives of Iranian medicine. 2010;13(1):13.
5. Report NNISNS. Data summary from January 1992 through June 2004, issued October 2004. Am J Infect Control. 2004:470-85.
6. Penel N, Lefebvre J-L, Cazin J, Clisant S, Neu J-C, Dervaux B, et al. Additional direct medical costs associated with nosocomial infections after head and neck cancer surgery: a hospital-perspective analysis. International journal of oral and maxillofacial surgery. 2008;37(2):135-9.
7. Urban J. Cost analysis of surgical site infections. Surg Infect(Larchmt). 2006;7(Suppl. 1):19-22.
8. Kirby JP, Mazuski JE. Prevention of surgical site infection. Surgical Clinics of North America. 2009;89(2):365-89.

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9. Souba W, Fink M, Jurkovich G, Kaiser L, Pearce W, Pemberton J, et al. ACS Surgery Principles and Practice. ed t, editor: WebMD; 2007.
10. Cohn SM, Giannotti G, Ong AW, Varela JE, Shatz DV, McKenney MG, et al. Prospective randomized trial of two wound management strategies for dirty abdominal wounds. Annals of surgery. 2001;233(3):409-13.
11. Duttaroy DD, Jitendra J, Duttaroy B, Bansal U, Dhameja P, Patel G, et al. Management strategy for dirty abdominal incisions: primary or delayed primary closure? A randomized trial. Surgical infections. 2009;10(2):129-36.
12. Ghaderi H, Shamimi K, Moazzami F, Emami razavi SH, Aminian A, Jalali SM, et al. A new look at an old dogma: wound complications in two methods of skin closure in uncomplicated appendicitis. Tehran University Medical Journal. 2010;68(1):54-8.
13. Zahmati AH, Alipoor R, Shahmirzadi AR, Khori V, Abolhasani MM. Chemical Decellularization Methods and Its Effects on Extracellular Matrix. Internal Medicine and Medical Investigation Journal. 2017 Sep 11;2(3):76-83.
14. Onwuanyi ON, Evbuomwan I. Skin closure during appendicectomy: a controlled clinical trial of subcuticular and interrupted transdermal suture techniques. Journal of the Royal College of Surgeons of Edinburgh. 1990;35(6):353-5.
15. Soper DE, Bump RC, Hurt WG. Wound infection after abdominal hysterectomy: effect of the depth of subcutaneous tissue. American journal of obstetrics and gynecology. 1995;173(2):465-9; discussion 9-71.
16. Vipond MN, Higgins AF. Subcuticular Prolene or PDS for skin closure? Journal of the Royal College of Surgeons of Edinburgh. 1991;36(2):97-9.
17. Amooghadiri M, Heidari H, Shaker M, Zeinolabedin M. Study of Diseases Associated ESR above 100 among the Patients who Visited Shahid Sadoughi Hospital in the Second half of 2013. Internal Medicine and Medical Investigation Journal. 2016 Oct 6;1(1).
18. Khajouei Kermani H, Afsharfard A, Zeynalzadeh M, Najafbeigi A, Yavari P, Kalantar Motamedi M. Cosmetic surgical repair of contaminated wounds versus traditional loose approximation: Does it increase the rate of wound infections? Medical Journal of the Islamic Republic of Iran. 2007;20(4):158-60.
19. de Holl D, Rodeheaver G, Edgerton MT, Edlich RF. Potentiation of infection by suture closure of dead space. The American Journal of Surgery. 1974;127(6):716-20.
20. Movahedi B, Azizkhani L, Noori A. Pain Management and Its Related Factors in the Emergency Department of Besat Hospital in Sanadaj, 2016. Internal Medicine And Medical Investigation Journal. 2017 May 22;2(2):33-41.
21. Serour F, Efrati Y, Klin B, Barr J, Gorenstein A, Vinograd I. Subcuticular skin closure as a standard approach to emergency appendectomy in children: prospective clinical trial. World journal of surgery. 1996;20(1):38-42.
22. Cetin A, Cetin M. Superficial wound disruption after cesarean delivery: effect of the depth and closure of subcutaneous tissue.

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International Journal of Gynecology & Obstetrics. 1997;57(1):17-21.

Table1: Compare infection rates between the two groups

groups	Infection	Without infection	X2 test
with closing the subcutaneous tissue	4 3.8%	100 96.2%	P= 0.497
without closing the subcutaneous tissue	6 4.9%	96 95.1%	

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