



## POST-SURGICAL INFECTIONS IN PATIENTS ADMITTED TO ALMOUJTAHD HOSPITAL

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### ABSTRACT

**Objective:** This study aimed to study the prevalence of post-surgical infections at the Departments of Surgery, Neurosurgery and Orthopedics. **Materials and Methods:** The variables recorded included age, gender, type of infection, other diseases, and type of operation. **Results:** We found 1396 operations performed in the departments of Surgery, neurosurgery and Orthopedic surgery. 5.3% of the patients had a post-surgery infection. Most of the cases in our study were males with 62.2%. The most common age of presentation was between 26-65 years old (56.8%). Regarding the type of operation performed, most of them were Emergency operations (60.3%). 32.4% had diabetes or chemotherapy treatment. In most of the cases, wound

infection was the type of infection (28.4%). The most common treatment used to treat the infection was (Ceftriaxone + Augmentin + Metronidazole). **Conclusion:** This study shows the need for a bigger study on a larger scale in order to understand the post-surgical infections.

### INTRODUCTION

Infections that occur in the wound created by an invasive surgical procedure are generally referred to as surgical site infections (SSIs). SSIs are one of the most important causes of healthcare-associated infections (HCAIs). A prevalence survey undertaken in 2006 suggested that approximately 8% of patients in hospital in the UK have an HCAI. SSIs accounted for 14% of these infections and nearly 5% of patients who had undergone a surgical procedure were found to have developed an SSI.<sup>[1]</sup> However, prevalence studies tend to underestimate

SSI because many of these infections occur after the patient has been discharged from hospital.

SSIs are associated with considerable morbidity and it has been reported that over one-third of postoperative deaths are related, at least in part, to SSI.<sup>[2]</sup> However, it is important to recognize that SSIs can range from a relatively trivial wound discharge with no other complications to a life-threatening condition. Other clinical outcomes of SSIs include poor scars that are cosmetically unacceptable, such as those that are spreading, hypertrophic or keloid, persistent pain and itching, restriction of movement, particularly when over joints, and a significant impact on emotional wellbeing.<sup>[3]</sup>

SSI can double the length of time a patient stays in hospital and thereby increase the costs of health care. Additional costs attributable to SSI of between £814 and £6626 have been reported depending on the type of surgery and the severity of the infection.<sup>[4,5]</sup> The main additional costs are related to re-operation, extra nursing care and interventions, and drug treatment costs. The indirect costs, due to loss of productivity, patient dissatisfaction and litigation, and reduced quality of life, have been studied less extensively.

## MATERIALS AND METHODS

This study was a retrospective study of the files of the patients who reviewed AlMoujtahd Hospital (Damascus Hospital) between 1/2/2018 to 30/4/2018 and were diagnosed with post-surgical infections during the studied period.

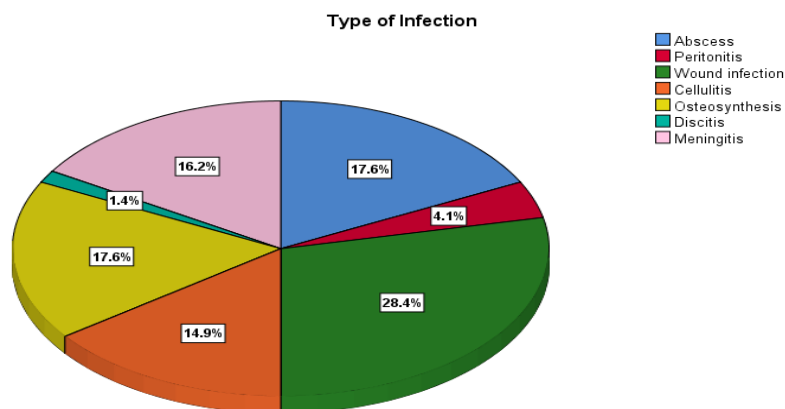
This study included all cases from 1/2/2018 to 30/4/2018. All the data were collected only by the authors to ensure the privacy and all the names and personal information were blinded. Statistical analysis was done using SPSS 25.0.

## RESULTS

**Table 1: Variables of our study.**

N of operations		Cases with Infection	
		N	%
<b>Total Operations</b>	1396	74	5.3
<b>Gender</b>	Male	46	62.2
	Female	28	37.8
<b>Age</b>	<17 years old	12	16.2
	18 – 25 years old	5	6.8
	26 – 65 years old	42	56.8
	66 – 79 years old	13	17.6

	80 – 99 years old	2	2.7
<b>Type of Operation</b>	Not Emergency	29	39.7
	Emergency	44	60.3
<b>Accompanying Diseases</b>	None	50	67.6
	Diabetes or chemotherapy	24	32.4



**Figure 1: Type of infection in our cases.**

**Table 2: Name of operation performed.**

		N	%
<b>Operation Name</b>	Colon Tumor	7	9.6
	Rectal Tumor	4	5.5
	Fragments In Abdomen	4	5.5
	Fistula Around Anus	1	1.4
	Anal Fissure	2	2.7
	Hemorrhoids	3	4.1
	Coccyx Fistula	2	2.7
	Appendicitis	1	1.4
	Abdominal Exploration	1	1.4
	Lipoma In Right Thigh	1	1.4
	Rectal Collapse	1	1.4
	Amputation	5	6.8
	Leg Fraction	6	8.2
	Intertrochanteric Fracture	7	9.6
	Hip Replacement	3	4.1
	Femoral Fracture	1	1.4
	Fragments In Leg Or Thigh	9	12.3
	Herniated Disc	2	2.7
	Hydatid Cysts	3	4.1
	Brain Tumor	2	2.7
	Gunshot In Head	3	4.1
	Depressed Skull Fracture	1	1.4
	Lumbar Spinal Fixation	1	1.4
	Fragments In Spinal Cord Or Head	2	2.7
	Thoracic Vertebrae Fracture	1	1.4

**Table 3: Treatment used for infections.**

		N	%
<b>Treatment</b>	Metronidazole	4	5.4
	Ceftriaxone	7	9.5
	Imipenem	3	4.1
	Ceftriaxone + Augmentin + Metronidazole	12	16.2
	Ceftriaxone + Metronidazole	10	13.5
	Ceftriaxone + Vancomycin	7	9.5
	Ceftriaxone + Augmentin	1	1.4
	Imipenem + Metronidazole	5	6.8
	Imipenem + Levofloxacin	4	5.4
	Imipenem + Ceftriaxone	4	5.4
	Ceftriaxone + Vancomycin Then Ceftazidime	2	2.7
	Amikacin then Ceftriaxone Then Imipenem	1	1.4
	Ceftriaxone + Metronidazole Then Imipenem	2	2.7
	Ceftriaxone then Imipenem	6	8.1
	Ceftriaxone then Vancomycin	5	6.8
Bandage Alone	1	1.4	

## DISCUSSION

We found 1396 operations performed in the departments of Surgery, neurosurgery and Orthopedic surgery. 5.3% of the patients had a post-surgery infection. Table 1.

Most of the cases in our study were males with 62.2% while females were 37.8%. The most common age of presentation was between 26-65 years old (56.8%), while the least common age was 80-99 years old (2.7) and 18-25 years old (6.8%), respectively. Table 1.

Regarding the type of operation performed, most of them were Emergency operations (60.3%), while 39.7% were not. Table 1.

Immunosuppressant conditions such as diabetes and chemotherapy increases the risk of infection. In our study, 32.4% had diabetes or chemotherapy treatment. Table 1.

In most of the cases wound infection was the type of infection (28.4%) followed by Osteosynthesis infection (17.6%), Abscess (17.6%), meningitis in 16.2%, cellulitis in 14.9%, Peritonitis in 4.1% and Discitis in 1.4%. (Figure 1).

The most common operation performed was due to fragments in the leg or thigh (12.3%) followed by Intertrochanteric fracture and Colon tumors in (9.6% for each). 6.8% of the cases had Amputation. Leg fractions in 8.2% of the cases, fragments in the abdomen and rectal

tumor were the operation performed in 5.5% of cases for each of them. These and the rest of operations are found in Table 2.

The most common treatment used to treat the infection was (Ceftriaxone + Augmentin + Metronidazole) in 16.2% followed by triple (Ceftriaxone + Metronidazole) in 13.5%. Ceftriaxone + Augmentin, Amikacin then Ceftriaxone then Imipenem and bandage alone were used in one case only (1.4%) for each of them. Table 3

## CONCLUSION

In most of the cases, wound infection was the type of infection (28.4%). The most common treatment used to treat the infection was (Ceftriaxone + Augmentin + Metronidazole). This study shows the need for a bigger study on a larger scale in order to understand the post-surgical infections.

## Compliance with Ethical Standards

**Funding:** This study was not funded by any institution.

**Conflict of Interest:** The authors of this study have no conflict of interests regarding the publication of this article.

**Ethical approval:** The names and personal details of the participants were blinded to ensure privacy.

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