

A descriptive study of alleged medical malpractice claims in Alexandria, Egypt. How far is it helpful?

Alleged medical malpractice claims in Alexandria, Egypt

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Abstract

Aim: Medical malpractice litigations represent a major problem worldwide, because of not only its socioeconomic burden on healthcare professionals but also the negative impact on healthcare quality. This article highlights the nature of the medical error, the responsible personnel, and the reasons behind medical malpractice claims to minimize their incidence and to encourage better professional health care standards.

Materials and Methods: This retrospective study was conducted on 80 claims of alleged medico-legal liability in Alexandria, Egypt, during the years 2015-2017. They were obtained from Alexandria Forensic Medicine Authority, Ministry of Justice. Data from claims, including the characteristics of the accused personnel and the proof or exclusion of malpractice in each case were collected.

Results: The present study showed that the patients who died in the course of medical care represented 21.3% of the cases, while permanent infirmities represented 6.3% of cases. Nearly half of the studied cases were reported in private healthcare sectors. Surgical related errors, whether on the table or in the postoperative period, were on the top of the alleged medical errors, occurred in 71 claims out of 80, followed by diagnostic errors and procedural errors. The most common medical specialties involved in the claims were orthopedic surgery, ophthalmology, general surgery, and obstetrics, and specialists were the commonest accused physicians (35%).

Discussion: Medical malpractice claims are a valuable source to reach the patients' satisfaction with healthcare services. Yet, the majority of the alleged claims in this study came out with exclusion of malpractice, which means that better tools of healthcare quality evaluation should be considered such as error disclosure, chart reviews, and clinical surveillance rather than loading the judicial system with unnecessary lawsuits.

Keywords

Medical malpractice; Medical errors; Healthcare quality; Medical ethics; Malpractice claims

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Introduction

Malpractice claims are of major concern for both patients and health-care providers. Patients are inclined to sue health-care practitioners when medical outcomes are not acceptable [1].

The number of malpractice litigations brought against healthcare providers has been increasing for the last few decades. This was explained by an increase in the patients' awareness about their rights to financial or even moral compensation in the setting of an overburdened health system with limited resources [2].

Litigation records should be used as a rich source for studies on health-care quality in a country. They carry the perspective of both patients and health care providers. However, in many low and middle-income countries, the lack of such records and systems is a major obstacle to measuring the quality of health care accurately [3].

World Health Organization (WHO) published in 2019 a 'patient safety fact file' that involved ten facts regarding the patients' safety. They reported that one in every 10 patients was harmed while receiving hospital care and that the medical errors were between the 10 leading causes of death and disability across the world. The most common causes of patient harm were inaccurate or delayed diagnosis, medication errors, and complications due to surgery [4].

However, medical errors are not necessarily malpractice because some certain risks and margins arise inherently in the practice of medicine [5].

There are practical difficulties in proving a causal relationship between sustained harm and medical error. It is still even more difficult to establish the standard of care a patient should have. In almost every malpractice lawsuit, expert testimony is a must and clinical experts in the appropriate specialty get access to the medical records and report the case too [5].

In Egypt, physicians are subjected to the country's common laws, which include; Penal Law, Civil Law, Code of Criminal Procedures, Instructions for the Public Prosecution. When a case of medical malpractice is raised, a series of legal procedures will take place. First, the patient or a family member shall present a claim to the nearby police department. Secondly, the legal authorities will investigate the case either civil (for compensation, in front of civil court) or criminal (in front of criminal justice). Then, a forensic expert will be assigned to issue a forensic report of living or an autopsy report. Finally, establishing the presence or absence of liability will be concluded [6].

Awareness of high-risk situations that might eventually bear criminal liability could make physicians more cautious about their clinical practices, to promote patients' safety as well as, to avoid further litigations. In this study, the medical liability claims in Alexandria, Egypt, were evaluated to identify the reasons behind the claims, the nature of clinical error causing conviction, and the responsible personnel.

Material and Methods

The current study was carried out after approval of the Ethics Committee of Faculty of Medicine, Alexandria University (IRB number: 00012098, approval serial number: 020905). Confidentiality was considered throughout the study. Alexandria is the second capital of Egypt. According to the

latest census in 2017, the Egyptian population has reached 94,798,827 million people. The population in Alexandria represented 5.5% of the total population, which was considered half the percentage of the population in Cairo. Alexandria contains many private hospitals and clinics in addition to six university (teaching) hospitals.

A retrospective study was conducted on the final medico-legal reports in the context of claims of medico-legal liability during the years 2015 - 2017. Eighty claims were obtained from Alexandria Forensic Medicine Authority, Ministry of Justice.

Each medico-legal report represented the final revised form of a forensic expert opinion. Upon this report, the court gives its judgment.

Every medico-legal report included first the plaintiffs' complaint inside a prosecution note, an Arabic summary of the medical records related to the case, the affirmative defense of the accused party, the clinical expert opinion in the appropriate specialty, the forensic examination (either living or autopsy) and the forensic expert opinion with proof or exclusion of malpractice.

The recorded data included the year of the claim, data related to the plaintiff (the person who filed the lawsuit, patient's age, gender, and the recorded harm that happened to him/her), data related to the location of the incident, data related to the accused personnel (gender, qualifications, and specialty) and finally the proof or exclusion of malpractice.

Statistical Analysis: Data were fed into the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp).

Results

This retrospective study was conducted on 80 claims of alleged medico-legal liability in Alexandria during the years 2015 - 2017. The study showed that 46 malpractice suit were raised during the year 2017 followed by the year 2016 (24 lawsuits) and the least recorded malpractice suits were in the year 2015 (10 lawsuits).

The plaintiffs were the patients themselves in 58.8% of all claims, while the patients' relatives raised the remaining claims due to either death or incompetency of the patient.

Demographics characteristics of the patients

The highest percentage of the patients (38.75%) was in the age group 20 – ≤ 40 years. There was male predominance (65%) while females represented (35%) with a ratio of 1.86:1. (Table 1).

In the present study, 21.3% of the studied patients died in the course of medical care while 48.7% ended with residual damage that cannot be legally classified as permanent infirmity. Those who had evident permanent infirmity were about 6.3% of cases and 23.7% of patients were eventually fully recovered (Table 1). Permanent infirmities in the studied cases ranged from 30% up on surgical removal of both left ovary and fallopian tube up to 65% for an above elbow amputation.

Circumstances of the malpractice incident

Nearly half of the studied cases (53.75%) were reported from private healthcare sectors, followed by governmental (23.75%) and university (teaching) hospitals (18.75%) while only 3.75% of reported cases were from military hospitals. The private

Table 1. Distribution of studied claim suits during the years of study

Year of the claim	No.	%
2015	10	12.5
2016	24	30.0
2017	46	57.5
Total	80	100

Table 2. Patients' demographics

Patient's age (years)	No.	%
<20	13	16.25
20 – ≤40	31	38.75
40 – ≤60	25	31.25
60 – ≤80	11	13.75
Min. – Max.	0 – 80.0	
Mean ± SD.	40 ± 20.1	
Median	38.0	

Patient's gender	No.	%
Male	52	65.0
Female	28	35.0

Any recorded injury or complications	No.	%
Death	17	21.3
Permanent Infirmary	5	6.3
Fully recovered later on	19	23.7
Residual damage (no permanent infirmity)	39	48.7
Total	80	100

Table 3. Data related to the incident

Hospital	No.	%
Private	43	53.75
Governmental	19	23.75
Military	3	3.75
University	15	18.75

Place of the incident	No.	%
Operation room	55	68.75
More than one place	19	23.75
Outpatient	4	5.0
Emergency room	2	2.5
Total	80	100

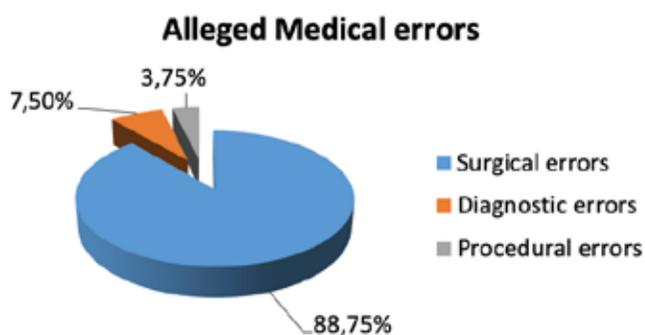


Figure 1. Classification of alleged medical errors

Table 4. Characteristics of the accused physicians

	No.	%
Number of accused physicians per claim		
Single	53	66.25
More than one person (up to 7)	27	33.25
Total number of claims	80	100
Gender		
Male	111	89.5
Female	13	10.5
Position (job)		
Resident	30	24.2
University staff member	21	17.0
Specialist	43	34.6
Consultant	30	24.2
Total number of accused physicians	124	100
Medical specialty		
Orthopaedic surgery	20	25.0
Ophthalmology	13	16.3
General surgery	9	11.3
Obstetrics and Gynaecology	9	11.3
Neurosurgery	4	5.0
Urology	4	5.0
Vascular surgery	4	5.0
Plastic surgery	4	5.0
Paediatric surgery	2	2.5
Anaesthesia	1	1.3
Internal medicine	2	2.5
Otolaryngology	1	1.3
Physiotherapy	1	1.3
Radiology	1	1.3
Emergency medicine	1	1.3
More than a specialty in one claim	4	5.0
Total number of claims	80	100



Figure 2. Sub-classification of surgical errors

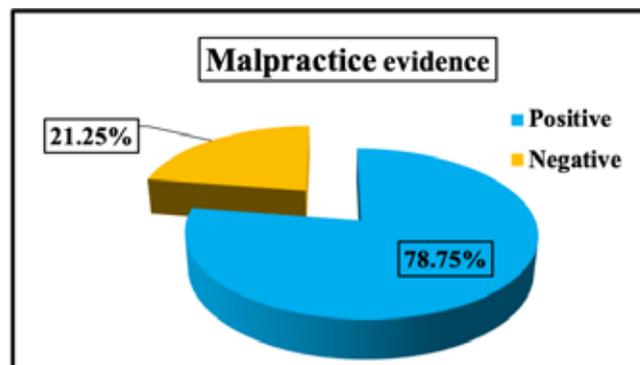


Figure 3. Evidence of malpractice

Table 5. Distribution of positive malpractice cases according to physician's characteristics and place of incident.

Position (Qualification)	No.	%
Consultant	11	34.3
Resident	10	31.3
Specialist	7	21.9
University Staff member	4	12.5
Total number of accused physicians with positive litigation outcome	32	100
Medical specialty (discipline)	No.	%
Obstetrics and Gynaecology	3	17.6
Orthopaedic surgery	2	11.75
General surgery	2	11.75
Plastic surgery	2	11.75
Paediatric surgery	1	5.9
Anaesthesia	1	5.9
Vascular surgery	1	5.9
Emergency medicine	1	5.9
Neurosurgery	1	5.9
Ophthalmology	1	5.9
Urology	1	5.9
More than one specialty in a single case	1	5.9
Place of the incident	No.	%
Operation room	14	82.35
More than one place	2	11.75
Emergency room	1	5.9
Total number of claims with positive proof of malpractice	17	100

sector comprises private hospitals and doctors' clinics, which were perceived as of higher quality than public services. Most private services are paid for out-of-pocket; as private health insurance is insignificant.

The operating room was the location of the incident in nearly two-thirds of the alleged malpractice claims (68.75%). Around 23.75% of claims involved more than one place such as the operating room in addition to the ward (where postoperative follow up took place). (Table 2).

Regarding the alleged medical errors in the studied claims, surgical related errors, whether on the table or in the postoperative period, represented the majority of all claims (88.75%), followed by diagnostic errors and procedural errors (7.5% and 3.75% respectively). (Figure 1)

Surgical related errors in the current study were assigned to improper performance at the time of the operation in 35.2% of this kind of errors. Two claims related to orthopedic surgery documented improper performance together with negligence in postoperative follow up. The highest percentage of cases (61.9%) was unfortunately related to inevitable complications that arose during the operation or in the postoperative period and they might be related to the original disease or trauma or the poor general condition of the patient. (Figure 2).

Procedural errors involved different specialties, like IV contrast allergic reaction in CT scan in radiology, IUD uterine perforation in a gynecology clinic.

Diagnostic errors included mainly delayed diagnosis or inherently delayed referral. For example, delayed diagnosis of anal fistula in one claim resulted in the development of septicemia and

Table 6. The summary of malpractice cases with positive evidences

Medical specialty	No.	Medical errors
Obstetrics and Gynaecology	3	1- In a CS operation, a forgotten towel inside the patient's abdomen was complicated with colon fistula and temporary colostomy. (Major negligence) 2- In a D&C operation, uterine perforation with an intestinal tear occurred which then complicated with gangrene and removal of both left ovary and fallopian tube (permanent infirmity 30%). (incompetent resident performing D&C and negligent specialist who was on duty and didn't perform the operation) 3- In fibroid removal / D&C operation, uterine perforation occurred with an intestinal tear which then complicated with septicaemia and septic shock (death from pulmonary thrombo-embolism in the ICU).
Orthopaedic surgery	2	1- After a car accident, faulty fixation of fractures, superadded infection and negligence of complication in the postoperative period, all resulted in mal-union with shortness and limitation of movement in left lower limb and in left forearm and wrist (permanent infirmity 40%). 2- After an accidental fall on left hand, faulty fixation of fractures, 2ry infection and negligence of complication in the postoperative period, all resulted in gangrene and above elbow amputation (permanent infirmity 65%).
General surgery	2	1- In haemorrhoidectomy operation by diathermy, technical errors resulted in 3rd degree burns around the operation site. The surgeon should have stopped the operation once a technical error was detected. 2- In hiatal hernia repair surgery, the use of a harmonic scalpel resulted in a puncture of transverse colon. An ileostomy instead of colostomy was done. Repeated leakage was then treated by repeated colostomies. The surgeon was negligent due to early removal of drainage, not sealing the ileostomy opening and injuring the gall bladder. The patient ended with septicaemia and septic shock.
Plastic surgery	2	In two different cases of liposuction and skin tightening operation, it was not acceptable in plastic surgeries that the surgeon failed to achieve the wanted outcome and even resulted in disfigurement at sites of surgery for further correction.
Anaesthesia	1	In an urgent appendectomy in a cardiac patient, the anaesthesiologist was blamed for the delayed management of hypoxia on turning the patient from spinal to general despite the alarming evidence of an abnormal O2 saturation (92% in an intubated patient) at the beginning until it reached 70% and the patient arrested.
Vascular surgery	1	In an elective surgery for removal of a congenital extra cervical rib, The physician in charge operated on both sides instead of operating only on the right side and the result was complete recovery on the right side and injury of the brachial plexus on the left side. (Major negligence)
Emergency medicine	1	Delayed diagnosis of an inflamed anal fistula in the emergency room until a gangrene developed in the pelvic tissues and scrotum. Delayed referral till the patient died from septic shock
Neurosurgery	1	In L5-6 disc surgery, retroperitoneal haemorrhage resulted and an active bleeding from the common limbic vein. The surgeon did not also deal properly in a timely manner with the complication and the patient died from haemorrhagic shock.
Ophthalmology	1	In a cataract surgery under local anaesthesia, burst eye bleeding occurred and there was a delay in shifting to general anaesthesia to deal with the complication, also there were residual bleeding in the vitreous until the vision was lost completely in the right eye.
Paediatric surgery	1	In a circumcision operation in a 5-month-old baby, penile skin tear was induced with subcutaneous hematoma and urinary fistula, which needed further procedure to change urethral opening later.
Urology	1	In percutaneous lithotomy operation (Removal of ureteric stone), ureteric perforation resulted with septicaemia and septic shock.
More than one specialty	1	In an operation to relieve an occluded artificial artery in the left leg, both the surgeon and the anaesthesiologist were blamed for performing the surgery without securing the appropriate blood group that resulted in severe bleeding on table without compensation, acute renal failure and hypovolemic shock.
Total no. of positive claims	17	5.9
CS: Caesarean Section, D&C: Dilatation and Curettage, ICU: Intensive Care Unit		

death of the patient from septic shock. Misdiagnosis was also reported in another claim, where the diagnosis was based on a misleading x-ray.

Characteristics of the defendant physicians

Nearly two-thirds of the claims (66.25%) involved an accusation of a single physician as shown in Table 3. The maximum number of accused physicians in a single case was seven that makes the total number of accused physicians in the studied claims 124 and the majority of them (89.5%) were males.

Regarding the professional level of the accused physician, it was found that specialists represented 34.6% of all accused physicians. Consultants and residents are the second most involved physicians (24.2% for each), followed by university staff members (17%). (Table 3).

In terms of seniority, a resident is a physician who has just completed MBBch and gets training for five years, while a staff member is the one who has an MD degree in a certain specialty and has become a lecturer in the university. A specialist is the one who completed five years after the master's degree in his specialty while being a consultant is after ten years of obtaining master's degree or just after taking MD in the specialty.

Table 3 demonstrates the most frequently involved medical specialties. One-quarter of claims were related to orthopedic surgeons (20 claims), while 13 claims were against ophthalmologists. Nine lawsuits were raised against general surgeons and the same number against obstetricians. In 5% of the studied cases, more than one specialty was involved in a single case.

Evidence of malpractice based on the forensic expert opinion

Based on the conclusion at the end of the final medico-legal reports revised in the present study, 78.75% of the alleged claims had ended with a conclusion of negative evidence (no evidence of medical malpractice). Only 21.25% of the claims proved to be positive medical malpractice cases (there was a proof of a direct causative relationship between the medical error and the patient's harm.) (Figure 3).

In the current study, it was found that the highest percentage of physicians with a positive allegation of malpractice were consultants, followed by residents (34.3% and 31.3% respectively), while the least accused physicians with positive evidence of medical malpractice were university staff members (12.5%).

The highest percentage (82.35%) of positive malpractice litigations happened due to malpractice inside the operating room, while the lowest percentage (5.9%) was due to medical errors in the emergency room.

Obstetrics and Gynecology field had the highest percentage (17.6%) of all positive malpractice lawsuits cases. Three out of nine cases related to an obstetrician were proved to have an element of medical malpractice. One of the three claims was proved as major negligence (*Res-ipsa-loquitur*) despite the full recovery of the patient later on. It was in the form of a forgotten towel inside the patient's abdomen, which had been complicated with colon fistula and a temporary colostomy. Different surgery specialties (orthopedic, plastic, and general) come next in cases with a positive outcome (2 cases each). The least involved specialties were anesthesia, pediatric surgery, vascular surgery, neurosurgery, urology, emergency medicine,

and ophthalmology.

The medical errors and the result of harm to the patient in the proven cases of malpractice are shown in supplementary data Table S1.

Discussion

Medical malpractice claims usually provide an important guide to the drawbacks of clinical practice.

The current study reported increased numbers of medical malpractice claims in Alexandria along the three years of the study period (2015-2017). Many regional and international studies on medical malpractice claims assume a similar outgrowing trend in claims' frequency. In a summary that was published by World Health Organization (WHO) about medical malpractice situations in the Eastern Mediterranean region, in 2013, there were 200 malpractice cases in Jeddah and over 500 malpractice complaints in Dubai. Besides, Fars Legal Medicine Department in Iran reviewed 370 complaints throughout the years 2008-2011. Ghaffar (2015) also verified an increase in medical error reporting in Saudi Arabia (2007 – 2013) [7, 8].

Many factors can explain the observed increasing trend of claims such as the increased patients' awareness of their rights in both receiving high standards of medical care and compensation for any unwanted outcomes, or maybe the increasing frequency of medical errors due to the disproportionate number of equipped places relative to population increase with poor communication between physicians and their patients [8].

Social media recently had an important role in enriching the public awareness of their rights to an acceptable standard of healthcare. The World Medical Association (WMA) in its statement on medical malpractice stated that the media promoted mistrust in physicians and encourages complaining about them. Besides, people are always confused about the right to healthcare with the right to maintain health. In fact, a doctor is obliged to do his best to provide care but cannot guarantee the outcome of his care [9].

In Egypt, the economic decision to float the Egyptian pound at the end of 2016 had limited the use of high-quality medical supplies and hence adversely affected the outcome of healthcare [10]. This may explain why the number of malpractice claims raised to be nearly doubled in the year 2017 than that in the year 2016.

The total number of claims in the current study was 80 claims over three years from 2015 to 2017. This represents a high trend if compared with a 15-year population study (2000-2014) in Taiwan, where total closed malpractice claims reported from the Taiwan Supreme Court were 84 claims [11] and 50 malpractice claims in Delhi, India, from 2009 to 2014. [12]. While it was less than the number of claims reported in Beijing, China, which was 505 malpractice claims from 2002 – 2011 [13].

On the other hand, the number of malpractice claims in different Egypt governorates was variable, and this may be attributed to the difference in numbers of the population. In Cairo and Giza, Hassan et al (2014) evaluated a total number of 243 claims from 2009 to 2011, while in Qalyubia, Meghaoury et al (2018) studied 113 claims from 2010 to 2014 [14, 15].

The highest percentage (38.75%) of patients in this study was

in the age group of 20 – ≤ 40 years. This age group represents the age of maximum productivity, so any harm or disability to a person at this age group may push him/her to raise a claim for any degree of compensation. In contrast, Madea and Preu (2009) indicated in their study in Germany that the majority of patients were older than 50 years, which may be due to differences in the culture and the life or style between developing and developed countries [16].

The present study showed that there was male predominance (65%) while in other studies, the majority of patients were females [15, 16]. As in the current study, the orthopedic claims that constituted one-quarter of all claims almost involved males, who were eager to compensate for their disabilities (that cost a lot in treatment and rehabilitation), as males usually financially support their families. While, the high percentage of females in other studies, being mainly in the reproductive age, and were related to the highest percentage of obstetrics and gynecology claims.

Death was reported in 21.3% of the studied patients. Paula et al. (2011) in Vienna referred to low estimates of deaths because of under-reporting of negligent acts that contributed to death [17]. In other studies, patient death was encountered in almost half of malpractice claims [18, 19].

Those with evident permanent infirmity accounted for about 6.3% of cases, which were relatively low in comparison to other studies [15]. Permanent infirmities in the studied cases ranged from 30% for surgical removal of both left ovary and fallopian tube up to 65% for an above elbow amputation.

In the current study, it was noticed that the low incidence of medical malpractice claims was in public (governmental and university) hospitals in comparison to private healthcare sectors.

This was in agreement with a study in China in which three-quarters of the incidents occurred in privately owned health care facilities [20]. On the contrary, an Egyptian study revealed that governmental and public hospitals carried the highest incidence rates of malpractice claims [15]. This was due to, as elaborated upon in their research, there were relatively larger number of government hospitals and patients admitted there, in addition, most of these hospitals were less equipped as they were present in rural areas.

The majority of the defendant physicians in the current study were male specialists. Male physicians are usually concentrated in the interventional healthcare fields that entail a high risk for medical errors and litigation.

The most involved specialties in this study were in agreement with those found by Yadav and Rastogi, 2015 in India [12]. On the contrary, many other studies stated that Obstetrics/Gynecology was the most encountered specialty in medical malpractice claims [21]. These specialties are at high-risk for litigation probably because they frequently address acute medical problems that require rapid decision-making such that a poor outcome may be unavoidable and they are predominantly procedure-driven, and outcomes are dependent on the skill of the treating physician [22].

As a result, it is not surprising that in our study surgical related errors, whether on the table or in the postoperative period, represented the highest percentage (88.75%) of all studied

claims, followed by diagnostic errors and procedural errors. The operating room accordingly was the incident scene in nearly two-thirds of the claims (68.75%).

There was a common agreement that medical errors were related to different kinds of surgery. The World Health Organization (WHO) suggested that, globally, surgery still results in high rates of illness, disease, and death. Almost seven million surgical patients suffer significant complications annually, one million of whom die during or immediately following surgery. This was especially noticed two to three times higher in low and middle-income countries than in high-income countries [4]. Surgical related errors in the current study were assigned to improper performance at the time of the operation in 35.2% of this kind of errors. The improper performance included poor communication with the patients, wrong decision, poor surgical skills, and inadequate preparedness of the patient. Sometimes, the improper performance was associated with negligence in postoperative follow-up. Azab (2013) also found that improper performance of surgical procedures was the most frequent cause of the claims that occurred in inpatient settings (32.3%) followed by the inadequate postoperative follow-up (20%) [18]. Diagnosis-related errors, which were observed in the studied claims, included mainly delayed diagnosis and inherently delayed referral. Diagnostic errors are identified as the most prevalent type of error in many specialties of the medical field preliminary, emergency medicine, cardiology, otolaryngology, and internal medicine. The diagnostic error may result from faulty clinical reasoning, misinterpretation of diagnostic tests, or be related to or exacerbated by system failures and is often multifactorial [23].

Most of the medico-legal reports were guided by medical records and expert opinion of the involved specialty according to Egyptian Law No. 96 for the year 1952, which organized the work of expert witnesses in front of courts. The expert testimony may be offered by the Committee of Medical Ethics in the Egyptian Medical Syndicate, or by medico-legal consultation centers [18].

The litigation in the current study had positive evidence of malpractice in only 21.25% of the claims (17 claims) and the rest ended with the exclusion of malpractice. Many studies showed almost the same findings [11, 12, 15, 16]. Selbst et al (2005) [24] and You et al (2015) [12] demonstrated that physicians were held responsible for two-thirds of approved malpractice claims. That is not surprising because of the well-developed reporting systems and the satisfying tort systems in the USA and China.

Obstetrics and Gynecology field had the highest percentage (16.7%) of all positive cases. This might be explained by certain common faults like failure to take adequate measures to treat complications, left surgical instruments, and wrong surgical techniques. In the present study, the only recorded case related to the anesthesia field was proved positive for a malpractice claim. The anesthesia team is usually blamed for deaths that occur during the administration of anesthetics [14].

Conclusion and Recommendations

This study concluded that medical malpractice claims are significantly increasing so that physicians should learn from negative experiences in malpractice lawsuits, how to be more

cautious while practicing clinical care. Orthopedics represented the most common specialty to be blamed and public hospitals had fewer medical malpractice claims compared to private ones. Death was reported in one-fifth of the studied patients, and 5 % of the cases had a permanent infirmity.

Since most of the encountered medical errors were related to surgeries, there is a need to develop more advanced and safe surgical techniques in addition to the careful selection of patients for elective operations (a kind of defensive medicine). Since the majority of the alleged claims came out with exclusion of malpractice, it is recommended that other tools of healthcare evaluation should be set into action like error reporting and error disclosure rather than malpractice lawsuits to get a broader view of the healthcare quality. Besides, methods as chart reviews, direct observation of treatment, and clinical surveillance, are better indicators of active errors or adverse events.

The greatest limitation in the present study was the limited number of studied claims (only final medico-legal reports were included), no court verdicts were available (to make sure of the final judgment), and data were retrieved from reports written in Arabic (no medical records or reports, which made it hard to conclude the accurate medical condition and medical terminology).

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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