

Investigation of Complaints Related to Vascular Problems and events referred to Fars province general administration of forensic medicine during the years 2008 to 2018

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Abstract:

Background and Objective: Medical errors are defined as negligence or mistakes in planning or execution that lead to unintended results or complications. This study aimed to investigate complaints following vascular surgeries referred to forensic medicine in Fars province from 1387 to 1397.

Materials & Methods: This retrospective analytical study reviewed all complaints related to vascular surgeries across various fields, including surgery, orthopedics, urology, gynecology, ENT, maxillofacial surgery, general practitioners, and specialists. Data were collected from files at the General Directorate of Forensic Medicine of Fars province.

Results: The study examined 59 complaints related to vascular surgeries, involving 33 men (55.9%) and 25 women (42.4%). The suspects included 42 men (71.2%) and 7 women (11.9%). Complainants typically had primary education and were self-employed, while suspects generally had specialized education. The frequency of complaints against vascular surgery malpractice increased annually, with all cases being provincial or re-provincial. Of the cases reviewed, 37 were acquitted, and 21 were convicted, representing 35.6% of the cases. Public hospitals were the most frequently mentioned sites of malpractice, followed by private hospitals and board of trustees' hospitals. The most common cause of complaint was patient death, accounting for 27 cases.

Conclusion: The study of medical malpractice cases related to vascular surgery from 1387 to 1397 revealed that most complainants had low educational levels, while suspects had higher education levels. Most complainants and suspects were male. Complaints primarily involved public hospitals, followed by private hospitals. Patient death was the most common complication associated with medical malpractice, followed by treatment complications. After review by the primary and re-provincial commissions, most suspects were acquitted, with about one-third convicted of malpractice.

Keywords: *medical malpractice, forensic medicine, vascular surgery*

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Background and Objective

Medical malpractice, regardless of its causative factors or nature, represents a significant challenge within the domain of medical ethics. It has become increasingly evident that numerous physicians and healthcare professionals possess a limited understanding of the legal ramifications associated with this field.¹ Furthermore, the rise in patient dissatisfaction, complaints, and legal actions against healthcare providers due to diagnostic and therapeutic errors has emerged as a pressing societal concern. Despite the concerted efforts of healthcare professionals and the availability of advanced medical facilities, levels of dissatisfaction and the frequency of complaints continue to escalate.^{1,2} Medical errors are defined as instances of negligence or inappropriate actions taken during the planning or execution of patient care, resulting in unintended adverse outcomes. Alarming, these errors are responsible for a greater annual mortality rate than deaths attributed to incidents, breast cancer, or AIDS combined.³ It is reasonable to anticipate that even the most skilled and conscientious healthcare professionals, who diligently adhere to clinical protocols—including the acquisition of informed consent—remain susceptible to facing complaints.^{4,5} Statistics indicate that in the United States, the proportion of physicians subjected to complaints rose from 8% in 1986 to 27% in 1990.⁶ Other studies estimate that approximately 98,000 individuals die annually as a result of medical errors in the United States.⁷ In our own country, the increasing trend in complaints against healthcare professionals is distinctly evident; for example, complaints referred to the Tehran Forensic Medicine Organization surged from 134 cases in 1995 to 299 in 1999, climbing further to 823 in 2004, and ultimately reaching 1270 in 2005.⁸ These statistics underscore a notable upward trajectory in the incidence of complaints.⁹ In certain investigations, it was determined that no malpractice had occurred, and factors unrelated to medical negligence were identified, thereby absolving the physician of

wrongdoing. Research suggests that one in every 25 hospitalized patients may suffer harm due to medical negligence.¹⁰ The rise in complaints against physicians may be attributed to an enhanced public understanding of medical conditions coupled with a heightened awareness of personal rights.¹¹ Reports from the Forensic Medicine Organization indicate that complaints pertaining to medical malpractice increased from 184 cases in 1995 to 289 cases in 1999.¹² A significant proportion of these complaints involved violations of medical regulations, with approximately 90% associated with physicians' failure to be present at designated times in hospitals.¹³ Moreover, analysis revealed that a substantial majority (87.3%) of complaints lodged against general practitioners originated from fellow general practitioners, particularly within private practices.¹⁴ International reports addressing complaints against treating physicians across various countries suggest that, despite significant scientific advancements and the introduction of new diagnostic and therapeutic technologies, the frequency of complaints continues to rise.¹⁵

In the Iranian Forensic Medicine Organization, the volume of complaints examined for medical negligence increased from 184 cases in 1997 to 289 cases in 1999.¹⁶ In Tehran Province, complaints against physicians referred to the Medical Council soared from 134 cases in 1995 to 1270 cases in 2005. In many Western countries, where numerous insurance companies are actively involved, malpractice complaints are often linked to ongoing therapeutic processes. However, in Iran, individuals may initiate complaints not solely based on substantiated grievances but also due to encouragement from relatives or other physicians, which may lack a scientific basis and lead to unnecessary emotional and financial burdens for both complainants and investigative organizations.¹⁸ Vascular complications account for a considerable proportion of complaints when compared to other medical fields. Vascular surgeons, in

particular, frequently encounter emergency situations characterized by unexpected bleeding during surgical procedures, many of which result in formal complaints against them.¹⁹ While the most legally prudent course of action may involve refraining from treating patients in such high-risk scenarios, ethically, physicians must remain well-informed regarding relevant regulations and utilize them appropriately when necessary.²⁰ The purpose of this study is to enhance the understanding of medical malpractice specifically related to vascular complications by analyzing complaints filed concerning vascular incidents referred to the Forensic Medicine Organization of Fars Province between 2008 and 2018.

Materials and Methods

This retrospective and descriptive study utilized a data collection form alongside existing documentation from the files maintained by the Medical Commission of the Forensic Medicine Organization of Fars Province. Data pertaining to complaints arising from vascular issues were collected from a variety of sources, including cardiologists, vascular surgeons, general practitioners, nurses, and other healthcare personnel. The data collection form encompassed several parameters: patient age, gender, education, occupation, reasons for malpractice, type of medical facility, causes and motivations behind the complaints, types of surgery, awareness of malpractice, underlying health conditions, site of injuries, and the amount of damages determined. All cases presented to the Medical Commission of the Forensic Medicine Organization of Fars Province concerning malpractice associated with vascular problems from 2008 to 2018 were comprehensively reviewed, and pertinent data were collected and documented. Based on the verdicts rendered, the degrees of negligence or acquittals were recorded, along with satisfaction levels and case resolutions. Moreover, instances of fatalities, reasons for disabilities, and damages resulting from negligence were thoroughly examined. In order to uphold ethical standards and ensure confidentiality, all case

file reviews were conducted at the headquarters of the Forensic Medicine Organization in Fars Province, guaranteeing that no confidential information regarding complainants or respondents—such as names and addresses—was disclosed.

Statistical Analysis of Findings

The collected data were systematically recorded and statistically analyzed using SPSS software version 22. Descriptive results were presented in tables and graphs, with continuous data reported as means and standard deviations and categorical variables expressed as absolute frequencies and relative frequencies (percentages). The Chi-square test was employed to compare categorical data, while the t-test was utilized for continuous data comparisons. A P-value of less than or equal to 0.05 was considered statistically significant.

Findings

In this study, a total of 59 complainants concerning vascular problems and incidents were evaluated, comprising 33 men (55.9%) and 25 women (42.4%). Additionally, 59 defendants (the healthcare professionals and staff under complaint) were examined, including 42 men (71.2%) and 7 women (11.9%). Among the complainants in medical malpractice cases, 14 were single (23.7%), 41 were married (69.5%), and 4 were divorced (5.1%) (Refer to Diagram 1).

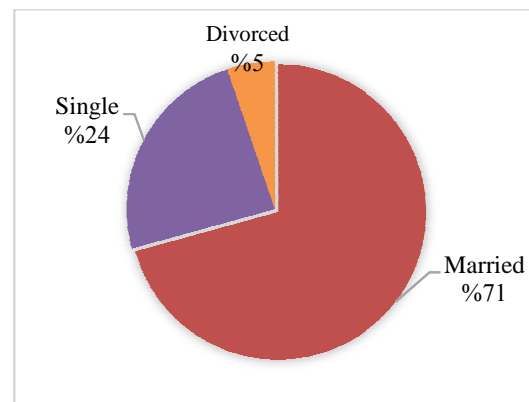


Diagram 1 - Comparison of the frequency of plaintiffs in terms of marital status in cases of medical malpractice complaints regarding vascular problems and accidents

The majority of complainants in this study had attained a primary level of education, while the least representation was noted among illiterate individuals. Statistical analysis using the Chi-squared test (P = 0.0) indicated a significant difference in the education levels of the complainants.

The data demonstrate that most complainants were self-employed, with employees representing the smallest proportion (refer to Table 1 and Diagrams 2 and 3).

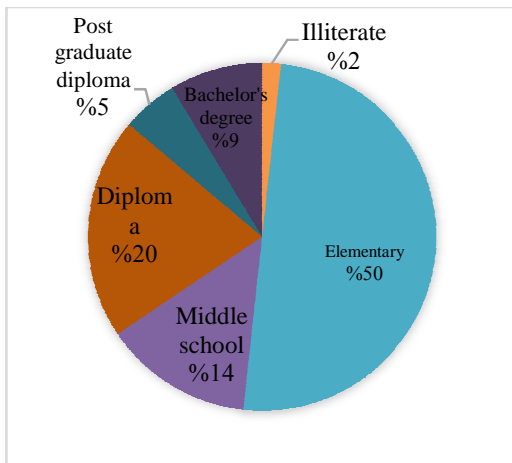


Diagram 2 - Prevalence of complainants in terms of education level in cases of medical malpractice complaints regarding vascular problems and accidents

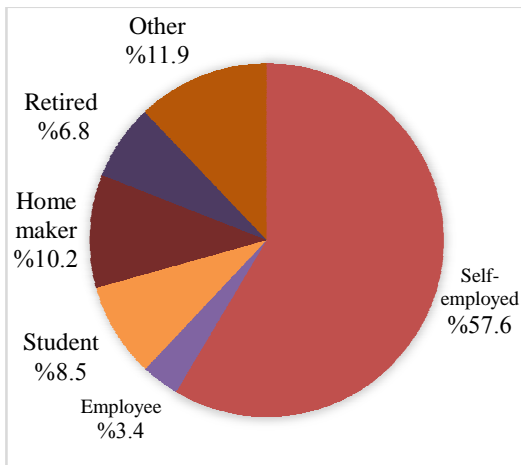


Diagram 3 - Comparison of the frequency of complainants in terms of employment status in cases of medical malpractice complaints for vascular problems and accidents

Table 1- Demographic characteristics of plaintiffs and defendants of vascular problems and accidents

| Variable | Frequency | | |
|---------------------------------------|-------------------|--------------|------------|
| | Absolute (number) | Relative (%) | |
| Marital status of the complainants | Single | 14 | 23.7 |
| | Married | 41 | 69.5 |
| | Divorced | 3 | 5.1 |
| | Unknown | 1 | 1.7 |
| Education of the complainants | Illiterate | 1 | 1.7 |
| | Primary | 29 | 49.2 |
| | Middle School | 8 | 13.6 |
| | Diploma | 12 | 20.3 |
| | Postgraduate | 3 | 5.1 |
| | Bachelor's Degree | 5 | 8.5 |
| | Unknown | 1 | 1.7 |
| Education of the Defendant | Specialist | 26 | 44.1 |
| | Subspecialist | 22 | 37.3 |
| | Medical staff | 1 | 1.7 |
| | Unknown | 10 | 16.9 |
| Age group of the complainants | Under 20 | 5 | 8.5 |
| | 20-29 | 12 | 20.3 |
| | 30-39 | 16 | 27.1 |
| | 40-49 | 5 | 8.5 |
| | 50-59 | 10 | 16.9 |
| | 60-69 | 8 | 13.6 |
| | Over 70 | 3 | 5.1 |
| Employment status of the complainants | Freelance | 34 | 57.6 |
| | Employee | 2 | 3.4 |
| | Student | 5 | 8.5 |
| | Housewife | 6 | 10.2 |
| | Retired | 4 | 6.8 |
| | Other | 7 | 11.9 |
| | Unknown | 1 | 1.7 |
| | Total | 59 | 100 |

Conversely, a significant proportion of the accused individuals possessed specialized educational qualifications, whereas healthcare personnel constituted the least

represented group. The Chi-squared test ($P = 0.0$) further corroborated significant differences in the educational attainment of the complainants (see Diagram 4).

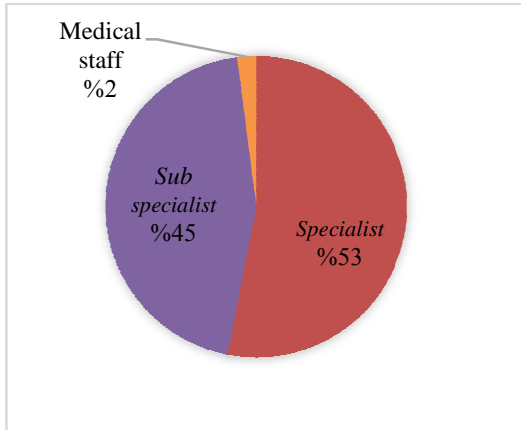


Diagram 4 - Comparison of the frequency of respondents in terms of education level in cases of medical malpractice complaints, vascular problems and accidents

The study also assessed the incidence of cases over time, revealing an upward trend in the frequency of complaints.

Regarding the types of hearings analyzed, there were 30 initial provincial hearings and 28 repeat provincial hearings (Diagram 5), with the Chi-squared test indicating a significant difference in the frequency of negligence classifications ($P = 0.0$). Ultimately, 37 cases resulted in acquittals, while 21 were found to be meritorious, representing 35.6% of the total cases studied. Public hospitals emerged as the most frequently cited locations for incidents of medical negligence, with 31 cases reported, accounting for 52.5% of the total. Additionally, complaints against private hospitals and trustee hospitals comprised 20.3% of the total complaints. The Chi-squared test also demonstrated statistical significance in this context, indicating a considerable variation in the frequency of complaints across different types of medical facilities ($P = 0.0$) (Table 2).

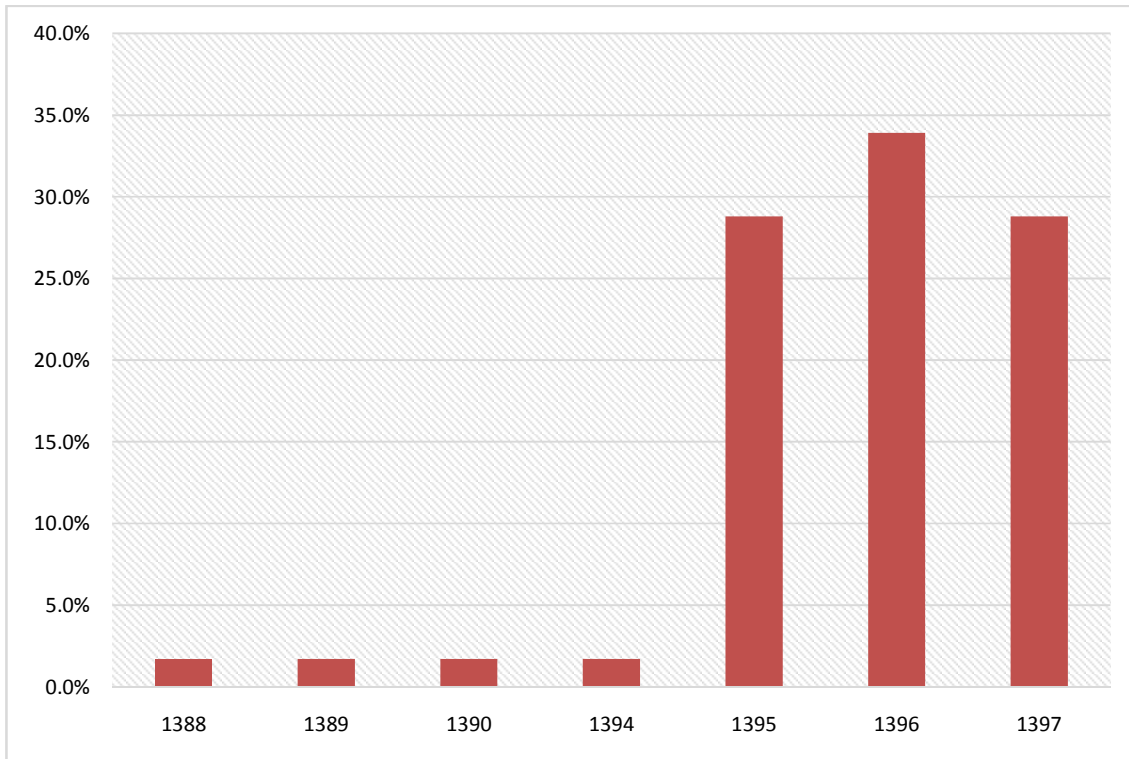


Diagram 5 - Frequency of plaintiffs by year of filing in cases of medical malpractice complaints regarding vascular problems and accidents

Table 2- Variables related to complaints and medical malpractice commissions in the field of vascular problems and accidents

| <i>Variable</i> | <i>Frequency</i> | | |
|-------------------------------|------------------------------|---------------------|------|
| | <i>Absolute</i> | <i>Relative (%)</i> | |
| <i>Type of medical center</i> | <i>Government Hospital</i> | 31 | 52.5 |
| | <i>Private Hospital</i> | 12 | 20.3 |
| | <i>Trustee Hospital</i> | 12 | 20.3 |
| | <i>Clinic</i> | 1 | 1.7 |
| | <i>Office</i> | 2 | 3.4 |
| | <i>Unknown</i> | 1 | 1.7 |
| <i>Type of referral</i> | <i>Emergency</i> | 34 | 57.6 |
| | <i>Outpatient</i> | 0 | 0 |
| | <i>Elective</i> | 24 | 40.7 |
| | <i>Unknown</i> | 1 | 1.7 |
| <i>Reason for complaint</i> | <i>Complication</i> | 19 | 32.2 |
| | <i>Limb damage</i> | 12 | 20.3 |
| | <i>Death</i> | 27 | 45.8 |
| | <i>Unknown</i> | 1 | 1.7 |
| <i>Type of commission</i> | <i>First time provincial</i> | 30 | 50.8 |
| | <i>Re-provincial</i> | 28 | 47.5 |
| | <i>High Staff Commission</i> | 0 | 0 |
| | <i>Unknown</i> | 1 | 1.7 |
| <i>Result of commission</i> | <i>Acquittal</i> | 37 | 62.7 |
| | <i>Conviction</i> | 21 | 35.6 |
| | <i>Unknown</i> | 1 | 1.7 |
| <i>Total</i> | 59 | 100 | |

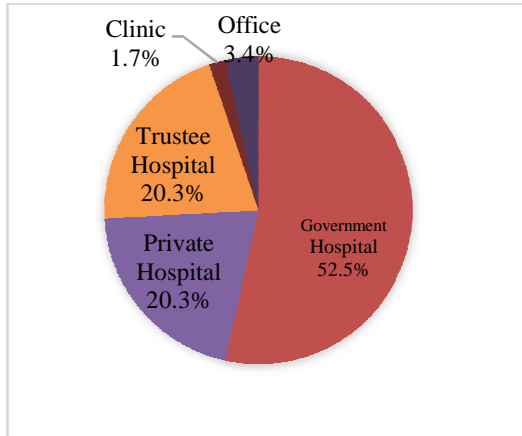


Diagram 6 - Comparison of the frequency of medical center types in cases of medical malpractice complaints for vascular problems and accidents

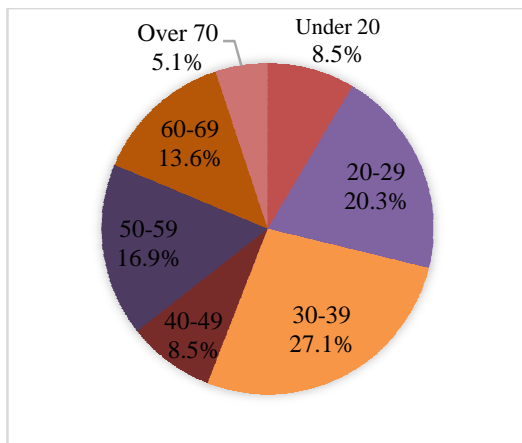


Diagram 7 - Comparison of the frequency of age groups of people complaining about medical malpractice, vascular problems and accidents

An additional demographic variable examined was the age distribution of complainants, which ranged from 9 to 74 years. Notably, individuals in their 20s and 30s constituted the largest group among those seeking to lodge complaints about medical negligence (Diagrams 6 and 7).

Discussion

In contemporary healthcare practices, medical liability has emerged as a matter of pivotal concern. Within this framework, the role of forensic medicine is crucial in preventing misinterpretations of scientific evidence. Forensic experts are tasked with conducting thorough investigations in cases involving alleged medical liabilities.²¹ Medical errors are defined as failures in service provision or lapses during diagnostic and therapeutic procedures that lead to, or have the potential to cause, undesirable outcomes and complications. Alarming, medical errors are estimated to cause more fatalities annually than accidents, breast cancer, or AIDS. While heart disease, cancers, and trauma are frequently recognized as the leading causes of mortality, medical errors should similarly be acknowledged as a significant contributor to global mortality statistics. The causes of medical errors are complex and not yet fully understood, underscoring the necessity for ongoing initiatives aimed at minimizing such errors as a critical component of clinical governance and risk management. The occurrence of medical malpractice, followed by patient complaints and lawsuits, ultimately gives rise to compensation claims, increasingly burdening physicians and the broader medical community. This trend is likely to adversely affect the quality of services rendered by healthcare professionals in the near future.²² This retrospective study concentrated on complaints related to vascular problems and incidents referred to the Forensic Medicine Organization in Fars Province between 2008 and 2018. The data revealed that the majority of complainants were male, outnumbering their female counterparts. Similarly, most accused parties in medical negligence cases were also male. Analysis of marital status among the complainants indicated that 23.7% were single, 69.5% were married, and 5.1% were divorced, with the majority of accused individuals possessing only a primary education. An examination of the place of birth showed that a significant proportion of complainants were born in Shiraz (73.3%),

while others were from the cities of Fasa, Jahrum, and Kazeroon.

Employment status among complainants indicated a predominance of self-employed individuals, while employees constituted the smallest group. The age distribution of complainants ranged from 9 to 74 years, with the highest frequency observed among individuals in their 20s and 30s. A report from the Iranian Legal Medicine Organization noted an increase in the number of complaints regarding medical negligence from 184 cases in the year 1376 to 289 cases in the year 1378.²³ Consistently, the present study identified an upward trend in the frequency of medical negligence complaints over the studied period. This growing awareness underscores the critical need for enhanced patient education, improved healthcare practices, and robust accountability mechanisms within the medical field.

In the present study, the forensic medicine organizations and departments played a crucial role in addressing complaints and claims pertaining to medical negligence. An examination of the commissions responsible for reviewing these cases revealed that the majority were first-level provincial commissions, followed by repeat provincial commissions. Notably, there were no instances of high-level committees being convened for case reviews. The research highlights that 96% of negligence cases occurred within emergency departments, while the remaining 4% were reported in urgent care centers. Regarding physician involvement, emergency department physicians accounted for 29% of cases, specialists for 19%, board-certified physicians for 46%, American-trained graduates for 70%, and full-time physicians for 96%. Furthermore, prior claims against the physician were noted in 66% of cases, with 65% involving multiple defendants. The predominant type of identified negligence was diagnostic error, comprising 39% of cases.²⁴ In this study, most accused individuals were specialists and subspecialists, followed by medical

personnel holding bachelor's and master's degrees.

A separate investigation revealed that 6% of cases involved medical errors, leading to financial compensation in 73% of those instances. Of the claims resulting in compensation, 39% stemmed from significant harm, 15% were related to serious injuries, and 26% involved patient fatalities.²⁵ Notably, 47% of fatal cases occurred in hospitals, underscoring the critical impact of serious vascular problems and injuries. The grave nature of cardiovascular diseases frequently results in numerous patient complaints and grievances lodged against physicians and medical staff.

This study specifically addressed complaints relating to medical negligence due to vascular injuries and problems, revealing that the majority of complaints originated from public hospitals, while private practices received the least number of complaints. Most grievances were directed at physicians, with some also aimed at medical staff. Among the themes of complaints, cardiologists faced the highest frequency of accusations. The most common complications reported were related to death (45.8%), followed by treatment complications (32.2%) and amputations (20.3%).

A study conducted in Hamburg, Germany, reviewed 27,731 autopsies related to heart diseases and medical negligence, identifying 11 cases in which improper placement of pacemakers resulted in infant fatalities.²⁶

In our study, it was found that 62.7% of cases referred for complaints against physicians and medical staff were ultimately exonerated, while 35.6% resulted in convictions. Most forensic examinations dismissed the involvement of physicians and medical staff in unintended patient incidents.

Additionally, in a related investigation, 63.5% of cases involved appeals for malpractice, with more than half concerning non-surgical interventions. Medical personnel were deemed negligent in 46.1% of these cases.²⁷ The outcomes of the

commissions were reviewed following autopsies conducted on deceased individuals.

Conclusion

This study concentrated on complaints regarding medical negligence related to vascular surgeries from 1387 to 1397. The results indicated that complainants typically held lower levels of education compared to the predominantly highly educated accused individuals. Both complainants and defendants were primarily male. Furthermore, a significant number of complaints originated from public hospitals where patients were referred on an emergency basis, followed by complaints from private hospitals and elective visits. The most grave complication associated with medical negligence was patient death, succeeded by treatment-related complications. A review of the cases in both

initial and repeat provincial commissions found that the majority of accused individuals were exonerated, while approximately one-third were convicted of medical negligence.

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Conflict of Interest

The authors declare that there are no conflicts of interest concerning this article.

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