

Interfaculty Chair and Department of Public Health, Skubiszewski Medical University of Lublin

MARIUSZ GONIEWICZ, PAWEŁ PERYGA, TOMASZ PIEJAK

*The stabbed wounds as a cause of injuries of different parts
of the body*

Wounds are the most frequent body injuries that a man sustains during his life. Every wound is characterized by the symptoms intensified to various degrees: pain, bleeding, and gaping. As regards the evoking factor the wounds can be divided into: mechanic wounds, thermal wounds, chemical and biological ones. By describing the forms of trauma wounds very often we can define the tool that caused the wound. One of the most dangerous wounds are the stabbed wounds. They arise by acting deep inside the body with a sharp tool (knife, bayonet, rod, nail). These kinds of wounds are characterised by a small area of stabbing and a narrow canal reaching deep inside. Sometimes when the instrument perforates the body there may appear a hole in the place where the tool stabbed the body through. The stabbed wounds of chest and abdomen may cause injuries of the inner body organs and lead to dangerous complications for the life of a victim (13).

The goal of the project was to analyse the mechanisms of injuries, ways of the primary and secondary dressing of the injuries as well as the influences of the outer factors.

MATERIAL AND METHODS

Between 1997 and 2000 in Jan Boży Regional Hospital in Lublin 171 patients were treated from injuries that resulted from stabbing. Men constituted 75.4% of these patients (129 persons) and women 24.6% (42 persons).

Only the patients with serious wounds were analysed, who needed to be hospitalized and the injured were taken care of in the surgical emergency ward during night shifts. 142 people (101 men and 41 women) were treated in outpatient clinic, and 29 were hospitalized (28 men and one woman). Three of the patients did not allow for the hospital treatment and therefore, were treated in outpatient clinic only. Two patients had left the surgical ward before all the diagnostic and therapeutic procedures were taken (they were included in the number of patients treated in an outpatient clinic).

RESULTS

Among 171 ill people 59% (101 people) constituted the injured between 21 and 41 years of age. The oldest patient was 73 and the two youngest were 13 years old. In one case there was no information about the patient's age in medical documentation. The structure of the age and sex of the patients is shown in Figure 1.

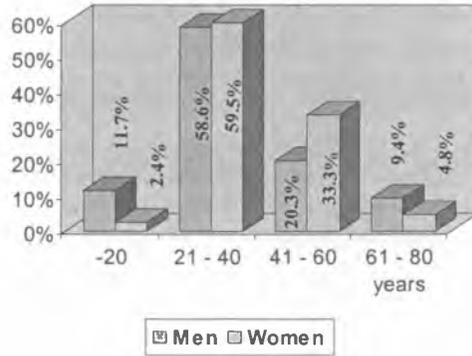


Fig. 1. Structure of the age and sex of the patients

In the case of 61 injured people the injuries were caused by a knife, and in 48 cases the cause was a nail. Other tools which were the cause of the stabbed injuries and barely exist in a medical documentation are: sharp pieces of glass, wooden spikes (splinters), ails, fish hooks, fish bones, screw-drivers, scissors, pieces of bones, pieces of a wire as well as forks and a harrow. In 15 cases the weapon of the injury was not stated in the medical documentation. The tools which were causing the stabbed injuries are shown in Table 1.

Table 1. Tools which were causing the stabbed injuries

Tool	Casualty		Sex		Total	%
	hospitalized	outpatient clinic	women	men		
Knife	23	38	13	48	61	35.7%
Nail		48	8	40	48	28.1%
Glass	3	7		10	10	5.8%
Wooden spike		10	6	4	10	5.8%
Needle, hook		9	4	5	9	5.2%
Bones, fish bones		5	3	2	5	2.9%
Screw-driver		3		3	3	1.8%
Wire		3		3	3	1.8%
Scissors		1		1	1	0.6%
Fork		1		1	1	0.6%
Harrow		1		1	1	0.6%
Plant needle: e.g. cactus		4	2	2	4	2.3%
Unknown	3	12	6	9	15	8.8%

Most people (79.4% of the patients) were injured in the aftermath of an accident. In 17 cases (10.1% of the injured) the stabbed wounds resulted from an assault by unknown culprits or row in family. The victims of the assault by unknown culprits were 13 men, including 10 men at the age of 21–33. The victims of the row in family were, in two cases women at the age of 27 and 43, and a 46-year-old man. In the case of 13 injured patients the circumstances of the appearance of the stabbed wounds were not specified in the medical documentation. The circumstances of the origins of the stabbed wounds are shown in Table 2.

Table 2. Circumstances of the origins of the stabbed wounds

Circumstance	Casualty		Sex		Total	%
	hospitalized	outpatient clinic	women	men		
Accident	8	128	35	101	136	79.4%
Assault by unknown culprits	12	2	1	13	14	8.3%
Self-injury	4	1	1	4	5	2.9%
Row in family	1	2	2	1	3	1.8%
Unknown	4	9	3	10	13	7.6%

It was stated on the basis of the analysis of the documentation that 50.3% of the injured had their stabbed wounds situated on the upper limb, 33.5% on the lower limb and 21.7% of the injured had their injuries on a trunk. The rest of the patients had injuries situated on head and neck. In Table 3 the data concerning the situation of stabbed wounds on a body is presented. In the treatment of the injured preventive or surgical action was taken: 34 injured people (19.5%) were treated preventively (the clearing of the wound, antibiotics, painkillers), 137 injured people (80.5%) needed a surgical treatment, including 132 people who needed a surgical dressing of the wound only, and five patients who were operated on in the course of emergency action.

Table 3. Location of stabbed wounds on the body

Situation	Casualty		Sex		Total	%
	hospitalized	Outpatient clinic	women	men		
Upper limb	8	79	29	58	87	50.3%
Lower limb	4	54	7	51	58	33.5%
Chest	10	2	3	9	12	6.9%
Abdomen	8	2		10	10	5.8%
Face		4	2	2	4	2.3%
Head		1	1		1	0.6%
Neck	1			1	1	0.6%

Among 29 hospitalized victims the majority spent in hospital one to seven days. One of the patients who was under the influence of alcohol left hospital at his will after a few hours since the registration. The shortest time spent in hospital by a patient was two days and the longest one 21 and concerned a man with a complicated wound of the chest. Three patients were discharged from hospital on their own accord subsequently after two, three and 14 days of treatment. The data concerning the time of hospitalizing is shown on Figure 2.

Among all the patients treated as a result of the stabbed wounds in Jan Boży Regional Hospital in Lublin in the years 1997–2000, 12 people (11 men and one woman) were under the influence of alcohol. Nine of them were hospitalized and three were treated in the outpatient clinic.

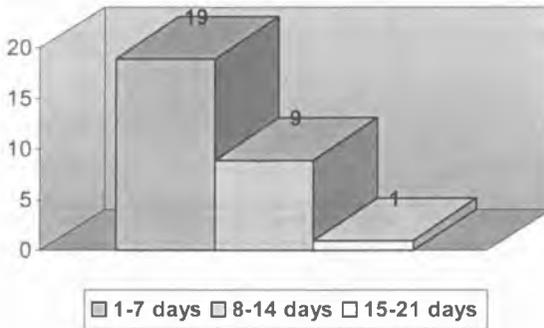


Fig. 2. Time of hospitalizing

DISCUSSION

It is estimated that as many as 25–30% of patients seen by outpatient clinic, first-aid places and surgical wards are people with different kinds of injuries. Most of them are not serious injuries which can be easily dressed. It is crucial to remember, however, that even the tiniest injuries need to be examined well and looked after properly right after the injury (5, 13).

On the basis of the analysis of the research results it was estimated that among the injured there was a great majority of people aged 21–40 (58.8% of the injured) both men and women. However, most of the 171 patients with the stabbed wounds were men. Among the outpatients, 75.4% constituted men and 34.6% women and among the hospitalized ones 96.6% men and 0.4% women. Similar results can be found in the works of other authors. They pay attention to sociological phenomenon that men are the ones who sustain the stabbed wounds but the culprits are usually women (2, 3, 9, 12).

Most of the stabbed wounds are caused by means of knives, nails, and sharp pieces of glass (3, 12, 13). On the basis of the juxtaposed materials it can be assumed that the tool which was most often used was a knife and a nail (109 people – 63.8% of the injured). Also the wound caused by a knife was the most frequent case of hospitalizing the injured (23 people – 79.5% of the hospitalized). All of the patients who reported with a wound caused by a nail were treated in the outpatient clinic (48 people). Big amount of wounds was caused by the tools not stated in the medical documentation (15 people – 8.8%). The injuries visible in men only were caused by sharp pieces of glass, screw-drivers, wire, scissors, forks and a harrow. Women's injuries were more often caused by splinters, bones or fish bones. Moreover, the male patients proportionally more often than women are victims of a knife or nail action.

The most frequent cause of a stabbed wound was an accident (136 people – 79.4% of the injured). The injuries of this kind were usually accidents at work (in machinery industry and building) as well as at home (cleaning, sewing, decoration work). Most of these patients (128 people) were seen as outpatients. However, the assault by unknown culprit was the most frequent cause of the hospitalization of the injured (12 people). It was also estimated that the stabbed wounds caused as a result of a family row by unknown culprits as well as self injuries were in most cases made with a knife or glass (broken neck of a bottle).

In deep stabbed wounds the traditional ways of surgical treatment are not used. It is not recommended to cut the wound wide in order to cleanse it. It is necessary to remove a visible or

perceptible foreign body and the wound should be rinsed with e.g. NaCl with the use of a needle or syringe (3, 5, 13).

Among the analysed injuries the majority were single injuries not boring into body cavities. The most frequent localization of a stabbed wound was upper limb (50.3% of the injured) and the lower parts of the body (33.4% of the injured). The injuries of an upper limb in 57% regarded an arm. The injuries of the lower parts of the body regarded a thigh, shank and foot and constituted respectively 19%, 14% and 45%. Most of the patients with the injuries of legs and arms were treated in out-patients' clinic and the injured with the injuries of chest and abdomen in most cases were treated in hospital conditions. The results are corresponding to the similar ones by other authors (2, 8, 13). Two of the patients sustained lots of injuries with a knife (one had his injuries on legs and arms made by an unknown culprit, and in the second one injuries of chest and abdomen were the result of self-injury).

All of the stabbed wounds of the trunk, neck and face should be treated as heavy injuries. The outward appearance of injuries is not a reliable factor of the injuries of the tissues that are deep in the body (11, 13, 15). Most of the injured need to be operated on (80.5% of the patients). Only in 19.5% of the cases the preventive treatment was sufficient. 114 outpatients had their injuries surgically dressed. Among 29 hospitalised ones, 23 had their injuries treated surgically, while five of the hospitalized patients were operated on immediately. In the general anaesthesia there were performed three laparoscopies, one thoracotomy and one procedure of sewing on artery and thigh vein. The stabbed wounds which reach pleura or peritoneum cavities should be immediately operated on in order to avoid complications and to get better results in the long run (7). Postponing the operation very often takes place in about 30% of the cases. It is caused by the fact that the tools causing the injury pull the moving intestines aside (6, 8). In most cases of the stabbed wounds of abdomen during the local anaesthesia the wound is worked out and the possible penetration of the injury into the peritoneum cavity is assessed. If the suspicion of the peritoneum damage appears, it is necessary to prick peritoneum cavity, which in more than 90% of the cases let decide about alimentary canal injured (except for the parts that are located outside the canal) (4, 8, 14). In the assessment of the intestine injuries not only injuries like perforation and haematoma are taken into consideration but also a torn mesentery especially the one combined with the injury of the mesentery, vessels. In case of the haematoma of mesentery located near the wall of the intestine it is necessary to check if the wall was not injured. The assessment of the kind of the injury and its width is crucial in making the decision concerning the further action (5). Each penetrating stabbed wound of the abdomen is an indication of the immediate laparoscopy which is still the method of the assessment of the injuries of the peritoneum cavity (1, 8, 10).

In the researched material laparoscopy was conducted in three cases. One of the cases concerned a 21-year-old man who was hit with glass near the middle abdomen by an unknown culprit. Laparoscopy did not show any trace of bearing the injury into the peritoneum cavity. The outer layer of the body was dressed. The patient was discharged from hospital after five days. In the second case a man aged 23 was prodded in his mesentery with a knife. These structures were sewn, drainage of the peritoneum cavity was appealed and after nine days of treatment the patient was discharged from hospital in a generally good condition. The third case regarded a 33-year-old man who was stabbed with a knife in the street by an unknown culprit in the area of the right middle abdomen. Laparoscopy showed the injury of the mesentery of the small intestine which was sewn and additionally a drainage of the peritoneum cavity was appealed. The injured man left hospital after eight days of treatment in a generally good condition.

The stabbed wounds of the chest are a rare case, however, there exists a big chance of potential injuries of the abdominal cavity organs and a chest. It is crucial for the life of a patient, therefore, to act surgically immediately (1, 11). It is especially important in cases of the stabbed wounds of the heart which take a big death toll – about 25% (15). During the research thoracotomy was made in a 19-year-old man who was stabbed with the unknown weapon (probably with a knife) on his chest on the left

side. During the treatment the heart injury was sewn as well as the injury of the left lung, a drainage of the pleura cavity was performed. Also antibiotic therapy was carried out, which consisted of cephalosporin of the third generation, aminoglycosid and metronidazol. The patient was discharged from hospital after 12 days.

The injuries of vessels were the case of the operation in one case. A 46-year-old patient prodded with a knife by his concubine was in shock and showed the symptoms of local anaemia of the leg. The operation of sewing veins and thigh artery was performed. The patient was discharged from hospital on his own accord after 14 days.

It was also estimated that none of the injured people did not need a secondary surgical treatment. Average period of hospitalized was about 6.94 days. All of the patients were discharged from hospital in the general and local good condition.

During the treatment special attention should be paid to the peculiarity of the stabbed wounds in comparison to other injuries. The stabbed wounds are usually infected or have dead tissues inside. Apart from the surgical treatment pharmacological treatment is crucial as well. The anti-tetanus vaccination is of basic importance here. According to the scientists from the General Hospital Hartlepool the early preventive use of antibiotics (within three hours after the injury) is very beneficial to the healing. The cephalosporins are recommended, which given intravenously every 6–12 hours reach a high concentration in the injury and affect the sensitive Gram-plus and Gram-minus microorganisms. It is also recommended to use aminoglycosids and because of their low therapeutic factor it seems to be fundamental to estimate their concentration in serum (5).

It was concluded that all the patients were asked about the tetanus. 62% of the injured got a dose of antitoxin similar to tetanus but 29.6% needed to be fully vaccinated against tetanus. Antibiotic therapy was used with all the outpatients and hospitalized ones. Most often those were antibiotics from aminoglycosid group as well as linkozamids, cephalosporins and metronidazol.

More than 7% of the patients treated as a result of stabbed wounds were under the influence of alcohol. These people in most cases needed an expensive hospital treatment. Taking alcohol before being stabbed makes the results of wounds even more serious, prognosis worse and the costs of healing higher (2).

CONCLUSIONS

1. The stabbed wounds are mostly caused by a knife or nails. Men prevailed among the injured people.

2. The stabbed wounds are often cases of injuries, which are dangerous for peoples' lives. Mostly, the stabbed wounds are the results of assault by unknown culprits.

3. Correct diagnosis and medication with anti-tetanus prophylaxis are of basic importance in stabbed wounds. We must remember that in each case we are supposed to individualize the treatment.

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SUMMARY

Only 171 patients with injuries that were caused as a result of stabbing treated in Jan Boży Regional Hospital in Lublin in the years 1997–2000, were analysed. The injured people were mostly men aged 21–40. 142 people were treated in outpatient clinic, and 29 were hospitalized. The medium time spent in hospital was about 7 days. Eleven of the hospitalized patients were operated on immediately. On the basis of the analysis of the research results it was estimated that: 1. The most frequent tool causing stabbed wounds in the case of hospitalized patients was a knife, and in outpatients – a nail. 2. The circumstances in which the stabbed wounds were most often appearing were accidents (out-patient clinic) and in the case of hospitalized patients assaults by unknown culprits. 3. The most frequent localization of the stabbed wounds among the hospitalized patients was chest and among the outpatients an arm or a leg.

Rany klute jako przyczyny obrażeń różnych okolic ciała

W pracy dokonano analizy 171 pacjentów (129 mężczyzn i 42 kobiety), leczonych z powodu ran klutych w SP Szpitalu Wojewódzkim im. Jana Bożego w Lublinie w latach 1997–2000. Poszkodowanymi byli najczęściej mężczyźni w wieku 21–40 lat. 142 osoby leczono ambulatoryjnie, a 29 osób hospitalizowano. Średni okres hospitalizacji wyniósł około 7 dni. 11 pacjentów operowano w trybie doraźnym, uzyskując dobry wynik leczenia. Na podstawie uzyskanych wyników badań stwierdzono, że najczęściej: 1. Narzędziem powodującym powstawanie ran klutych u pacjentów hospitalizowanych był nóż, natomiast u pacjentów leczonych ambulatoryjnie gwóźdź. 2. Okolicznościami, w których dochodziło do powstawania ran klutych, były nieszczęśliwe wypadki (leczeni ambulatoryjnie) oraz napady dokonane przez nieznaną sprawców (hospitalizowani). 3. Lokalizacją ran klutych u poszkodowanych leczonych ambulatoryjnie były kończyny górne i dolne, a u poszkodowanych hospitalizowanych – klatka piersiowa.