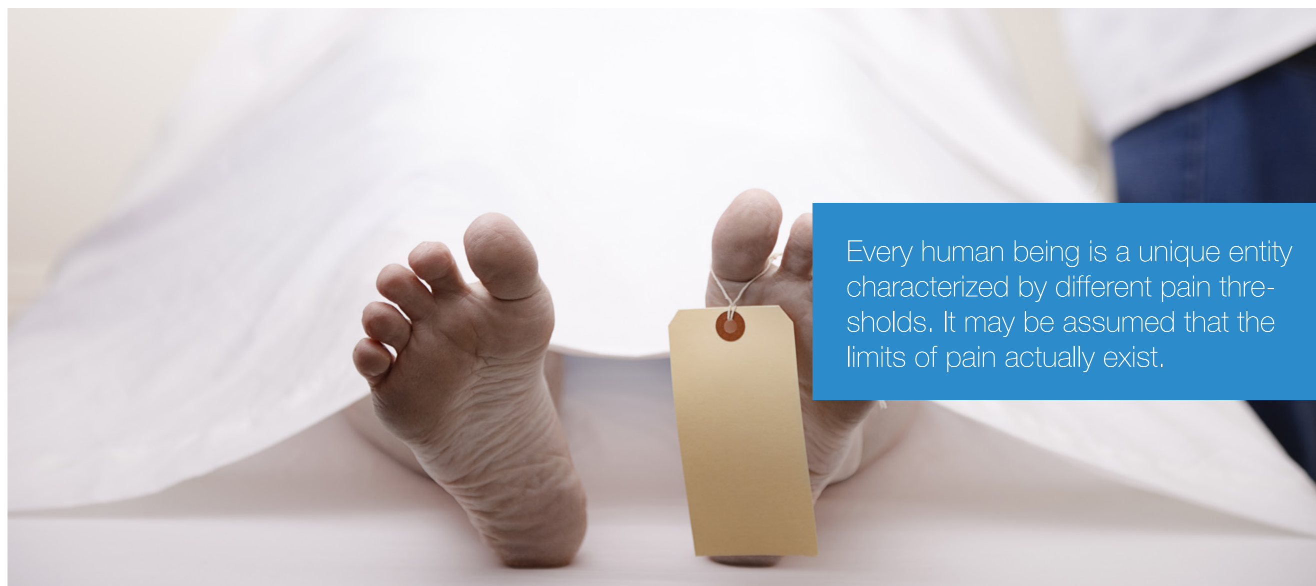

Pain threshold – self- inflicted injuries with the intent to commit suicide

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ABSTRACT

Every human being is a unique entity characterized by different pain thresholds. It may be assumed that the limits of pain actually exist.

In the court-appointed physician's practice, there exist self-mutilation suicide cases which are distinguished by numerous and severe body injuries. People who commit suicide in this manner have different pain inflicted perception than others. Otherwise, it would be beyond their capacity to harm themselves and inflict such damage and pain on their body.

From the psychiatry perspective, self-mutilation is defined as intentional and deliberate injury infliction on one's own body, a self-destructive behavior. This type of behavior may be of non-suicidal nature but often directly leading to death. Article shows a few cases, which were seen in the department of forensic medicine of Warsaw Medical University. This article showes that suicide cases with extensive self-harm done on body are interesting, not only from the standpoint of debate on self-injury inclination, but also from the standpoint of going beyond human physiological barriers associated with containing typical body's response to pain stimuli. While the discussion drew attention to the possible potential mechanisms explaining this phenomenon, yet this topic requires further study.

INTRODUCTION

Every human being is a unique entity characterized by different pain thresholds. It may be assumed that the limits of pain actually exist. In the court-appointed physician's practice, there exist self-mutilation suicide cases which are distinguished by numerous and severe body injuries. People who commit suicide in this manner have different pain inflicted perception than others. Otherwise, it would be beyond their capacity to harm themselves and inflict such damage and pain on their body.

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In their course of practice, the forensic physicians indicate that the most frequent self-mutilation cases are related to the areas of forearms (wrists), neck, torso. Other body areas are less frequently subject to self-inflicted injuries. As a rule, they are cut wounds and/or stab wounds in nature and their quantity usually does not exceed several injuries.

This thesis presents four suicide cases that resulted from self-mutilation. The deceased sustained a significant number of injuries inflicted with a sharp and/or pointed instruments. The location and nature of these injuries indicated that their emergence should have been accompanied by a significant amount of pain, exceeding the pain threshold of an average person.

In the described cases, the characteristics of the sustained injuries intravitality and the circumstances of their emergence indicated explicitly that the injuries were self-inflicted without any third party participation.

CASE NO. 1

A Male, around 30 years of age. The man was found dead in his flat. The corpse had deep neck, chest and abdominal wounds, with partial intestine gastroschisis, incisions, superficial wounds of the upper limbs. A knife and scissors were found by the corpse. In the dustbin, empty beer cans were found. In the room of the deceased, there were found psychotropic drugs leaflets and "Anticol" – a prescription medicine used in alcohol addiction cases. Initial findings of the public prosecutor indicate that the deceased abused alcohol and drugs. One day prior to his death, he threatened his relatives to commit suicide, which in his view was supposed to be a "punishment for himself for the torment done to his family". Shortly before his death, the deceased asked his friends about post-mortem organ transplant procedures. Examination and forensic medical post-mortem autopsy revealed numerous wounds from several millimeters to 12 centimeters in length on the front and lateral surfaces of the neck. On the level of the longest wound there was a four centimeter cut of the anterior laryngeal wall along with damage to the circothyroid membrane and within the left end of the wound, lower edge of thyroid cartilage incision of 3 to 4 millimeters deep. No damage to the major arteries was found. the surface of the chest revealed numerous slightly overlapping wounds from 0,7 to 12 centimeters in length with the subcutaneous adipose tissue being turned up at the edges of the upper wounds.

The wounds go towards the chest with the damage to the walls, ribs, intercostal spaces, pleura and lungs on both sides, pericardium, atrium and interatrial septum, pulmonary artery adventitia. There are also numerous wounds of epigastrium of 0,2 to 25 centimeters in length. Visible plane incision of the subcutaneous tissue and abdominal muscles within the longest abdominal wound. Through this wound, there is a small intestine outward displacement. Furthermore, the autopsy found multiple injuries of abdominal cavity internal organs i.e. numerous injuries to diaphragm surface, both left and right liver lobes, fissural incisions of anterior wall of the stomach and duodendum and further sections of the small intestine and multiple injuries to mesentery of the small intestine. Apart from the corpse was found a plastic bag containing a fragment of transverse colon along with the omentum. Within the intestine walls except the incision, the marks of ruptures o 10 centimeters were found, some of the ruptures seem to be intravital but other are devoid of such features. Furthermore, the corpse had multiple wounds on the surfaces of left and right forearms, arms and hands of 0,8 to 5 centimeters in length along with numerous linear epidermis abrasions. The autopsy and additional examinations results directly indicate that the death of the man was the consequence of multiple neck, chest and abdomen wounds. Gas chromatographic examination did not indicate the presence of ethanol in the blood of the deceased.

CASE NO. 2

In 2014, the corpse of a man was found in the forested area. At the moment of discovery, the deceased was naked, the body was in the semi-sitting position, with the chest leaning against a tree branch. The head was tilted backwards, the legs were bent in knees with the feet between the thighs and buttocks. The deceased was holding a carpet knife in the clamped hand. During the corpse examination, numerous cuts on the lateral neck surfaces and within the upper and lower limbs were found. The chest contained single cuts. The genitals were cut off and were found nearby after the corpse discovery. Around the corpse, the elements of clothing and the ID card were found. The witness hearing of the mother of the deceased revealed that her son had been treated for depression. In Autumn 2014, he was hospitalized for this reason but he was discharged at

his own request. The deceased was addicted to alcohol and despite antidepressants taken, he consumed alcohol. The witness testified that her last telephone conversation was on the date, he was to undergo the detoxification treatment. In the phone conversation the man refused to undergo the treatment and stated that he was not going to answer the further phone calls. The female partner of the deceased testified that they had been a couple for three years but had not lived together. She also testified that the deceased had been suffering from depression, had been taking antidepressants prescribed by the physician but at the same time he abused alcohol and his depression had got worse. The deceased confided to her that he was afraid of the therapy and suffered from anxieties over that reason and that he did not leave his home. He told her that he wanted to commit suicide by jumping from the high ground. The examination and forensic medical post-mortem autopsy revealed numerous cuts of the neck of 0,3 to 10 cm in length, upper and lower limb cuts, several cuts on every limb of 0,3 to 8 centimeters in length, single cuts on the chest. Apart from damage to left side of the ulnar artery and damage to the right side of the radial artery on the level of the wounds of the wrists, most of the wounds were superficial in nature and limited to walls. Forensic experts also found severing of the skin section of the penis along with the scortum and the mons pubis skin fragment. The severed penis part revealed the distal part of the penis deep structures. The proximal part of the penis deep structures remained with the body with the distinct marks of incision, the testicles hanged on the spermatic ducts.

Distinct decomposition marks including all the describe wounds were found on the body. The fragment of the severed genitals in the plastic bag delivered for the autopsy showed lesser degree of after-death changes. The edges of the severed genitals, both within the layers and deep structures that remained with the corpse, matched the delivered parts. The severed fragment of mons pubis and the part of penis skin and scortum matched the complete incision of the penis deep structures. The forensic medical post-mortem autopsy revealed that the death of the man was the result of bleeding from multiple wounds. Gas chromatographic examination did not indicate the presence of ethanol in the blood and urine of the deceased.

CASE NO. 3

A man in critical condition, conscious, without any signs of verbal-logical communication was admitted to the surgery ward. His skin and conjunctivae were pale, drying mucous membranes of the oral cavity, numerous abdominal stab wounds – in the epigastric region and midline, cuts of the distal areas of both forearms. On the day of admission to hospital, the surgery was conducted. The surgery revealed multiple cuts in the anterior abdominal region, gastroschisis of the cut small intestine through one of the wounds; several penetrating wounds with the multiple intestine incision. Furthermore, a stomach tumor was found. On the second day after the surgery the cardiac arrest occurred and death was declared. The information provided by the family indicate that the patient expressed suicidal ideation. He told them that "he is going to jump out of the window", "he is going to commit suicide". The final diagnosis: suicide attempt, multiple stab wounds of the abdominal region, small intestine incision, cuts in the areas of forearms, stomach tumor, posthaemorrhagic anaemia, mental disorders, organic changes to the central nervous system (dementia syndrome),temporary consciousness disorder, cardiac arrest. During the autopsy surgically dressed cuts of the forearm areas of 5 centimetres in length, surgically dressed stab wounds of abdomen of 1 to 5 centimetres in length, some of them penetrate into peritoneal cavity with the canals of 6,5 centimetres in length (in case of the possibility to open the canal); the condition after the performed abdominal surgery with partial small intestine resection including mesentery surgical dressing, renal cortex ischemia, pallor of internal organs, mucous membranes, sparse hypostasis, stomach tumor antrum. Gas chromatography study performed on the blood and urine of the deceased did not reveal the presence of ethanol.

In view of the available medical records and post-mortem examination it was assumed that the cause of man's death was the aftermath of numerous abdomen stab wounds, reaching the peritoneal cavity causing multifocal damage in their ducts, in small intestine and the mesentery. The above mentioned wounds resulted from the use of bladed tool, penetrating the body following the wound ducts. No common defense injuries, which are inflicted while attempting to catch the blade or trying to protect oneself against the blade were found on the deceased.

CASE NO. 4

In 2012 the prosecutor's office was informed by the Warsaw Metropolitan Police [Komenda Stołeczna Policji] about the murder of a man, which as committed in his flat. The prosecutor's office complaint showed that the man was found dead lying on the floor. The body showed incised wounds of the neck, chest, abdomen and groin. The kitchen knife covered with blood traces was found on the window sill. The blood traces were also present at the flat entrance. The doctor who arrived at the place of incident pronounced the man dead due to criminal causes.

The forensic medical post-mortem examination showed: numerous neck wounds ranging from 0,2mm to 14cm in length, with overlapping edges. In addition anterior left and right neck veins external neck vein were incised. In the area of the left nipple there was a wound 14,6 cm in length. In the area of the lateral

abdomen on the right, near the navel there was a wound 4 cm in length going towards the peritoneal cavity. The wound revealed dried out piece of omentum 23 cm in length. In the left inguinal area, there were to small wounds of around 0,6 cm in length. The pubic area shows penis amputation leaving the stump part of the corpora cavernosa with a length of 5.5 cm. The cut off part of the penis was delivered along with the corpse. In addition, there were multiple wounds of left and right forearm of around 2 cm in length. Forensic-medical post mortem examination showed that the main cause of man's death was hemorrhagic shock as the aftermath of numerous stab and incised wounds. The wounds were inflicted by a bladed tool with a sharp ending with one cutting edge. Gas chromatography study did not reveal the presence of ethanol in blood nor in the vitreous body of the eye. There were no body injuries on the deceased that would indicate any signs of active fight or defence right before the death. During the examination and forensic-medical post mortum examination it was stated that all injuries were in the area of own hand of the deceased and could be caused by self-mutilation.

CONCLUSIONS

1. The results of forensic-medical post mortem examination presented above indicate that pain resistance varies depending on the individual, to such a degree that in some cases it significantly exceeds commonly acceptable boundaries. And the results of the presented study do not explain the reasons of this phenomenon.
2. The nature and place of the identified injuries indicate that they were caused and accompanied with pain of great intensity, potentially exceeding pain resistance of an ordinary human being, it cannot be a factor differentiating the act of his own and stranger's hand.

DEBATE

Despite such a clear definition of self-harm, it is difficult to understand the „phenomenon" of self-harm and one needs to look at this issue more broadly. From a cultural perspective, the question arises whether this is just self-mutilation or pathology? Among the reasons for self-aggressive behaviors most often cited are: childhood sexual abuse (49%), lack of care (49%), emotional abuse in childhood done by others (43%), rape in adulthood (22%), having a violent partner (19 %), lack of support and communication (13%), loss of a child, infertility (according to research done by Babiker and Arnold) [1,2]. : [3]. addition to those described above there are also: conduct disorders, personality disorders, depression and other mental disorders (e.g. Borderline personality disorder) or posttraumatic stress disorder [3] Most frequent reasons of inflicting physical pain upon oneself by self-mutilation are: striving to diffuse tension and this way dealing with strong and difficult emotions, also diffusing anger inflicted on oneself and communicating ones suffering to others. [4]. Perhaps it is a form of replacing mental pain with physical one. While „minor" self-injuries can be easily explained by the above factors then the very fact of willingness to perform self-destruction which results in extensive injuries that require activity (active operation) of the person inflicting self-wounds despite strong pain stimuli, e.g. in one of the cited cases, the man performed the genitals amputation through precise dissection of the surrounding areas, that is the area where the trauma may lead to sudden cardiac arrest reflex.

Farazza [5] mentions these types of cases, describing them as so-called large self-mutilations that are quite rare and are generally associated with severe and often extensive injuries. Examples of such behaviors include, among the others, causing widespread and deep wounds using various tools, causing burns, eye hatches, amputations of toes or limbs, and performing self-castration.

These behaviors often coexist with mental disorders, psychoactive substance intoxication and drunkenness - which can reduce the perception of pain and distort objective assessment of the situation. Suicide may also be connected with sexual deviance, sexual arousal and self-harm arising from greater pleasure. The main aim of this paper is to show examples of self-harm with intent to commit suicide and to demonstrate that there is no universal, similar to all, the pain threshold, which would be an insurmountable barrier preventing infliction of injury to yourself that are typically combined with a strong physical pain. Pain can be viewed in two aspects. The first is purely pathophysiological, which indicates that the pain stimulus conducted from the receptors into the central nervous system. The mechanism of its formation is not yet fully understood. Pain compounds, e.g. histamine, serotonin, bradykinin and other peptides pay a significant role here. Apart from the receiving, conductive and accepting sensation of pain systems, there is also a system which modulates the sensation of pain. In this system modulating agents are opioid peptides, serotonin and other neuropeptides. The pain is accompanied by stimulation of the sympathetic nervous system, thereby causing pressure and heart rate increase and intense hormone secretion e.g.adrenal hormones. The pain should be considered a cascade of events, which in theory should accompany the activation of pain stimulus and through its escalation evoke action to remove the source of pain. The first factor that may affect „ignoring" pain is alcohol or other form of intoxication potentially decreasing the perception of pain. [6] In all three above presented cases such a situation did not occur, therefore was not a source of pain perception modification of these people.

However, to fully understand what the limits of human pain are, this phenomenon should be looked at from a psychological standpoint. Both pain threshold

sensation and pain tolerance threshold should be determined. The pain threshold sensation is the intensity of sensory stimuli that a person feels as pain. This value is relatively constant and characteristic for every human being. It is conditioned by the type of the human nervous system. Factors that increase the pain threshold are e.g. sleep, relaxation, companionship of others, compassion, and improving mood. Agents that decrease pain threshold are, for example, fatigue, insomnia, sadness, resignation, depression, anxiety or retreating into oneself. The pain threshold tolerance on the other hand, is the pain intensity that man is able to stand. [7] While the pain threshold sensation depends mainly on somatic factors, then the pain tolerance threshold depends entirely on psychic factors. [8] .In stressful situations, which undoubtedly self-mutilation and the decision to commit suicide are , some people may not feel the pain associated with tissue trauma for several minutes or even hours, among other factors, it is related to the release of adrenaline- the stress hormone, which may explain the lack of unconsciousness in mutilation of large body areas in the cases provided for in the forensic-medical examination and opening corpses. The same pain modification mechanisms can occur in traffic accident victims, where the victims of such events are able to perform different activities despite serious injuries. [9].

This article showed that suicide cases with extensive self-harm done on body are interesting, not only from the standpoint of debate on self-injury inclination, but also from the standpoint of going beyond human physiological barriers associated with containing typical body's response to pain stimuli. While the discussion drew attention to the possible potential mechanisms explaining this phenomenon, yet this topic requires further study.

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Fig. 2. Cuts on the chest and abdomen with intestine gastroschisis

Fig. 3. The cut wounds of the neck with the large vessels and trachea incision

FIG. 1. THE CUT WOUND OF THE ABDOMEN WITH INTESTINE GASTROSCHISIS AND OMENTUM

FIG. 2. CUTS ON THE CHEST AND ABDOMEN WITH INTESTINE GASTROSCHISIS

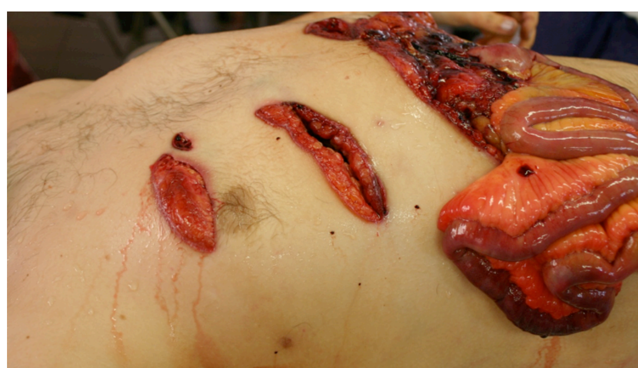
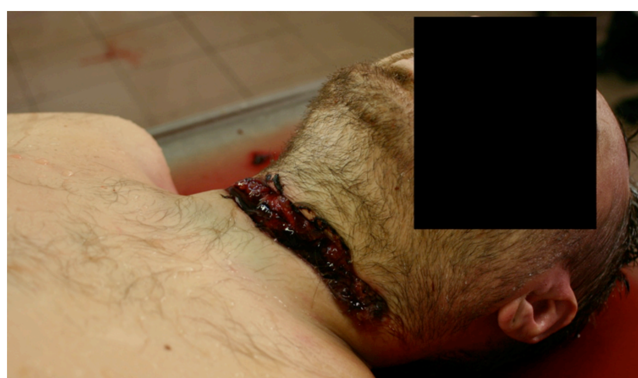


FIG. 3. THE CUT WOUNDS OF THE NECK WITH THE LARGE VESSELS AND TRACHEA INCISION



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