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Review Article

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Health Care Management of Acid Attack Survivors: A review

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ABSTRACT

Acid attacks occur all over the world in recent years and it is one of the most heinous crimes against human beings, especially against women. Acid attacks not only inflict physical injuries but also affects survivor's entire life. Acid attack survivors need utmost care in medicinal as well as in psychological treatment. Little is known about health care management of acid attack survivors. This review article summarizes history, epidemiology, reasons and effects of acid attacks. This review article provides prevention, first aid, treatment and social integration support of acid attack survivors.

Keywords: Acid attack, Acid attack survivors, Acid burn patients.

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CONTENTS

1. Introduction	231
2. Prevention.	233
3. Treatment.	233
4. Management.	233
5. References	234

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1. Introduction

Acid attack, a vitriol attack or vitriolage, also called as Acid throwing,¹ is a form of violent assault.²⁻⁴ Acid attack is defined as the act of throwing acid or a similarly corrosive substance onto the body of another with the intention to disfigure, maim, torture, or kill.⁵ Perpetrators of acid attacks throw acid at their victims, usually at their faces,

burning them, and damaging skin tissue, often exposing and sometimes dissolving the bones. [6]

History of Acid Attack:

Acid has been used in metallurgy since prehistoric times and for etching since the middle Ages and antiquity. The rhetorical and theatrical term "La Vitriole use" was coined

in France after a "wave of vitriolage" occurred according to the popular press, where in 1879, 16 cases of acid attacks were widely reported as crimes of passion, perpetrated predominantly by women against other women.⁷ Much was made of the idea that women, no matter how few, had employed violence as means to an end. On October 17, 1915 acid was fatally thrown on Prince Leopold Clement of Saxe-Coburg and Gotha, heir to the House of Koháry, by his distraught mistress, Camilla Rybicka, who then killed herself. Sensationalizing such incidents made for lucrative newspaper sales.⁸ The use of acid as a weapon began to rise in many developing nations, specifically those in South Asia.⁹ The first recorded acid attacks in South Asia occurred in Bangladesh in 1967,¹⁰ India in 1982, and Cambodia in 1993.⁷ Since then, research has witnessed an increase in the amount and severity of acid attacks in the region. However, this can be traced to significant underreporting in the 1980s and 1990s, along with a general lack of research for this phenomenon during that period.¹¹ Research shows acid attacks increasing in many developing nations, with the exception of Bangladesh which has observed a decrease in incidence in the past few years.¹⁰

Reasons for motivation of perpetrators:

Personal conflicts in intimate relations and sexual rejection: Acid attacks often occur as revenge against a woman in parts of south asia who rejects a proposal of marriage or a sexual advance. [14-16] Such attacks are common in societies where there is a high level of gender inequality and women occupy a subordinate position in relation to men.¹⁷ Acid attacks also often results from Conflicts related to dowry.¹⁰

Conflicts over land and property

Conflicts regarding inheritance and other property issues are also at times causes acid attacks. People are often assaulted due to land disputes.¹⁸⁻¹⁹

Gang violence and rivalry: Acid attacks related to conflicts between criminal gangs occur in many places, ranging from the United Kingdom²⁰ to Indonesia. [21] The intention of the attacker is often to humiliate rather than to kill the victim. In the UK such attacks are believed to be underreported, and as a result many of them do not show up in official statistics.²⁰

Socially, politically and religiously motivated.

Attacks against individuals due to their social or political activities, or due to their religious beliefs also occur. These attacks may be targeted against a specific individual, due to their activities, or may be perpetrated against random persons merely because they are part of a social group or community. In Pakistan, female students have had acid thrown in their faces as a punishment for attending school. [22] Acid attacks due to religious conflicts have been reported in Tanzania. [23,24] In Europe, Konstantina Kouneva, currently a member of the European Parliament, had acid thrown on her in 2008, in what was described as "the most severe assault on a trade unionist in Greece for 50 years." [25]

Acids used in Acid Attack:

- Sulfuric acid,
- Nitric acid,
- Hydrochloric acid.⁷

Health effects of Acid Burn Patients:

Acid attack can cause lifelong bodily disfigurement of the survivors. According to the Acid Survivors Foundation in Pakistan, there is a high survival rate amongst victims of acid attacks. Consequently, the victim is faced with physical challenges, which require long-term surgical treatment, as well as psychological challenges, which require in-depth intervention from psychologists and counselors at each stage of physical recovery. These far-reaching effects on their lives impact their psychological, social and economic viability in communities. [5]

Medical Effects:

The medical effects of acid attacks are extensive. Majority of acid attacks are aimed at the face,²⁷ and the severity of the damage depends on the concentration of the acid and the time before the acid is thoroughly washed off with water or neutralized with a neutralizing agent. The acid can rapidly eat away skin, the layer of fat beneath the skin, and in some cases even the underlying bone. Eyelids and lips may be completely destroyed, the nose and ears severely damaged.²⁸ though not exhaustive, their findings included:²⁹

The skull : partly destroyed/deformed and hair lost.

Ear cartilage:

It is usually partly or totally destroyed; deafness may occur.

Eyelids :

Burned off or deformed, leaving the eyes extremely dry and prone to blindness. Acid directly in the eye also damages sight, sometimes causing blindness in both eyes.

Nose can become shrunken and deformed; the nostrils may close off completely due to destroyed cartilage.

Mouth:

Mouth becomes shrunken and narrow, and it may lose its full range of motion. Sometimes, the lips may be partly or totally destroyed, exposing the teeth. Eating and speaking can become difficult.

Neck: Scars can run down from the chin to neck area, shrinking the chin and extremely limiting range of motion in the neck.

Esophagus and Nostrils: Inhalation of acid vapors usually creates respiratory problems, exacerbated restricted airway pathways in acid burn patients.

In addition to these above-mentioned medical effects, acid attack victims face the possibility of septicemia, renal failure, skin depigmentation, and even death.³⁰

Psychological effects:

Acid assault survivors face many mental health issues upon recovery. One study showed that when compared to published Western norms for psychological well-being, non-Caucasian acid attack victims reported higher levels of anxiety, depression, and scored higher on the Derriford appearance scale, which measures psychological distress due to one's concern for their appearance. Additionally, the women reported lowered self-esteem according to the Rosenberg scale and increased self-consciousness, both in general and in the social sphere.³¹

In some countries such as Saudi Arabia, Bahrain and Kuwait, acid attack victims are psychologically persecuted after the acid attack. The media overwhelmingly avoids reporting acid attack related violence; if covered, the

description of the attack is spartan, and often implies that the act was inevitable or even justified.³²

Social effects:

In addition to medical and psychological effects, many social implications exist for acid survivors, especially women.²⁹ For example, such attacks usually leave victims handicapped in some way, rendering them dependent on either their spouse or family for everyday activities, such as eating and running errands. These dependencies are increased by the fact that many acid survivors are not able to find suitable work, due to impaired vision and physical handicap. This negatively impacts their economic viability, causing hardships on the families/spouses that care for them. As a result, divorce rates are high, with abandonment by husbands found in 25 percent of acid assault cases in Uganda (compared to only 3 percent of wives abandoning their disfigured husbands).²⁹ Moreover, acid survivors who are single when attacked almost certainly become ostracized from society, effectively ruining marriage prospects.³³

2. Prevention

Regulation of acid sales: A positive correlation has been observed between acid attacks and ease of acid purchase.³⁴ Sulfuric, nitric, and hydrochloric acid are most commonly used and they are cheap and readily available in many cases. For example, often acid throwers can purchase a liter of concentrated sulfuric acid at motorbike mechanic shops for about 40 cents. Nitric acid costs around \$1.50 per liter and is available for purchase at gold or jewelry shops, as polishers generally use it to purify gold and metals. Hydrochloric acid is also used for polishing jewelry, as well as for making soy sauce, cosmetics, and traditional medicine/amphetamine drugs. [7] Because of such ease of access, many organizations call for a stricter regulation on the acid economy. Specific actions include required licenses for all acid traders, a ban on concentrated acid in certain areas, and enhanced system of monitoring for acid sales, such as the need to document all transactions involving acid. However, some scholars have warned that such stringent regulation may result in black market trading of acid, which law enforcements must keep in mind.⁵

Role of Non-Governmental Organizations:

Many non-governmental organizations (NGOs) have been formed in the countries with the highest occurrence of acid attacks to combat such attacks. Bangladesh has its Acid Survivors Foundation, which offers acid victims legal, medical, counseling, and monetary assistance in rebuilding their lives. [34] Similar institutions exist in Uganda, which has its own Acid Survivors Foundation, [29] and in Cambodia which uses the help of Cambodian Acid Survivors Charity.⁵ NGOs provide rehabilitation services for survivors while acting as advocates for social reform, hoping to increase support and awareness for acid assault. Bangladesh, the Acid Survivors Foundation, Nairpokkho, Action Aid, and the Bangladesh Rural Advancement Committee's Community Empowerment & Strengthening Local Institutions Programme assist survivors. [35] The Depilex Smileagain Foundation and The Acid Survivors Foundation in Pakistan operates in Islamabad, offering

medical, psychological and rehabilitation support.³⁶ The Acid Survivors Foundation in Uganda operates in Kampala and provides counseling and rehabilitation treatment to victims, as well as their families.³⁷ The LICADHO, the Association of the Blind in Cambodia and the Cambodian Acid Survivors Charity assist survivors of acid attacks. The Acid Survivors Foundation India operates from different centres with national headquarters at Kolkata and chapters at Delhi and Mumbai. Acid Survivors Trust International (UK registered charity no. 1079290) provides specialist support to its sister organizations in Africa and Asia. [37]

Acid Survivors Trust International is the only international organisation whose sole purpose is to end acid violence. The organisation was founded in 2002 and now works with a network of six Acid Survivors Foundations in Bangladesh, Cambodia, India, Nepal, Pakistan and Uganda that it has helped to form. Acid Survivors Trust International has helped to provide medical expertise and training to partners, raised valuable funds to support survivors of acid attacks and helped change laws. Indian acid attack survivor Shirin Juwaley founded the Palash Foundation⁴⁰ to help other survivors with psycho-social rehabilitation. She also spearheads research into social norms of beauty and speaks publicly as an advocate for the empowerment of all victims of disfigurement and discrimination. [41] In the year 2011, the principal of an Indian college refused to have Juwaley speak at her school for fear that Juwaley's story of being attacked by her husband would make students "become scared of marriage". [42]

3. Treatment

In many developing nations treatment for burn victims remains inadequate where incidence is high. Medical underfunding has resulted in very few burn centers available for victims in countries such as Uganda, Bangladesh,⁹ and Cambodia.⁵ For example, Uganda has one specialized burn center in the entire nation which opened in 2003,²⁹ likewise Cambodia has only one burn facility for victims,⁵ and scholars estimate that only 30% of the Bangladeshi people has access to health care.⁹ In addition to inadequate medical capabilities, many acid attack victims fail to report to the police due to a lack of trust in the force, and a fear of male brutality in dealing with their cases.³³ Most of the female victims suffer more because of police apathy in dealing with cases of harassment as safety issues as victims refused to register a police case despite being attacked thrice before meriting police aid after an acid attack.⁴⁴ These problems are exacerbated by a lack of knowledge of how to treat burns. Many victims applied oil to the acid, rather than rinsing thoroughly and completely with water to neutralize the acid. Such home remedies do not counteract acidity so in fact lead to increase the severity of damage.³⁰

4. Management

Provide First Aid to Acid Burn Patients:^{30,43}

It is very important to give a first aid to the acid burn patients as soon as possible because there are chances of

penetration of acid into the bone which could be fatal for their life.

- Immediately wash affected body part of patient with plenty of fresh or saline water. Avoid using dirty water as it may cause severe infection.
- Keep flushing the affected burn area with plenty of cool water until the patient's burning sensation starts fading. It may take 30-45 minutes.
- Remove all the clothing or jewelry which had contact with acid.
- Do not apply any kind of cream or ointment on the affected area as it may sluggish the treatment procedure by doctors.
- Use sterilized gauze to loosely wrap the affected area as it would protect the skin from air, dirt, debris and contamination.
- Rush the patient to a burn specialty hospital which has isolated wards for burn patients.

Treatment of wounds of acid burn patients⁴³

Hygiene:

The most common cause of death in acid burn patients is infection. The burn skin is very sensitive and can be easily infected. It is therefore very important to maintain a strict hygiene until the wounds are completely healed. The room and washroom used by acid burn patients should be thoroughly cleaned with disinfectant 2-3 times a day. Food containers should be properly sterilized before use. Acid burn patients must strictly avoid outside food.

Proper Dressing:

While doing dressing of movable body parts of acid burn patients utmost care has to be maintained. Take care that burnt skin do not come in contact with each other, otherwise they would stick with each other and it could worsen the situation.

Physiotherapy:

In acid burn patients nerves under the skin may get permanently damaged leading to inability in the movement of body parts and it could lead to physical handicap, if ignored. Therefore, regular sessions of physiotherapy are important to ensure that nerves are trained properly and body parts remain movable.

Skin Grafting:

In Acid burn patients surgery is performed to cover the open flesh with a skin which is taken from other parts of body where there is no burn e.g. thigh or lower back.

Protein Rich Food:

Acid burn patients need lots of proteins and carbohydrates for damaged tissues to heal. Consult nutritionist to arrange a proper diet for the patients throughout the course of treatment.

Monitor Hemoglobin: Large amounts of blood loss occur in acid burn patients which results in very low hemoglobin level. In such cases doctors cannot perform any surgery therefore patients should take diet which helps in improving hemoglobin level. In some cases blood transfusion should also be considered.

Corrective Surgery:

After the healing of wounds acid burn patients require a series of corrective surgery for correcting the contracted

skin. Consult a plastic surgeon for planning out the sequence of operation.

Long Term Maintenance:

- After the wounds heal maintenance of skin is utmost important so that scarred tissues settle well.⁴³
- Regular massage with coconut oil and contratubex two times a day.
- Gell sheet application on affected area at least twice a day.
- Pressure garment to wear at least 10-12 hrs a day.

Counseling of Acid Burn Patients:

At times acid burn patients have a very low self esteem due to pain, social stigma and they lose hope to live therefore patients should be provided good counseling support as the long course of treatment. There are several instances when acid burn patients have bounced back in life. Citing such instances would help the patients to regain faith and look ahead for their long battle with life.^{30,43}

Social reintegration support:

In many cases acid burn patients are disowned by their own family due to social stigma attached to the patients and the expensive cost of the treatment. Without proper social reintegration support patients at times tend to alienate themselves from the society. Therefore we should encourage them to step outside and participate in all the activities that they can. Following are few important ways to enable social reintegration of the acid burn patients.^{30,43}

Provide Shelter to the acid burn patients:

Acid burn patients may need to travel to different cities and hospitals due to various surgery needs. In many cases they cannot afford shelter for themselves and their family members at these locations. They should be provided shelter during the treatment course and also after that.

Occupational training:

We should help acid burn patients to become financially independent as it would help in reinstalling confidence in them. With proper occupational training they can work and earn money for themselves and their family. This would help them in building up their self esteem and motivates them to look ahead in life.⁴³

Education support:

Several acid burn patients come from very weaker section of the society and they may not have enough education. Providing educational support would open new opportunities for these patients and also makes their chances of rehabilitation better.⁴³

Society support:

Our society needs to be mature and progressive and people should look and think beyond the mere physical appearance. Instead of hiding their children from acid burn patients, they should make them understand that it happens to some unfortunate people and they should not be scared and run away from them. People should help them, talk to them and smile at them.^{30,43}

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