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Medico legal procedures related to sexual assault: a 10-year retrospective experience of a Daphne protocol application

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Abstract

Background: Sexual assault is a worldwide problem that has not yet been sufficiently acknowledged as confirmed by the literature. Italian law n.96, 1996, foreseeing norms regarding rape and sexual abuse, finally gave significant relevance to sex crimes. In 2004, the European Commission for Justice Internal Affairs and Social Politics promoted the Daphne II program to support victims of rape and abuse, and the Violence and Operative Healthcare Networks (Ve.R.S.O.) project started at the Policlinico "P. Giaccone" University Hospital of Palermo in 2006. Aim: data analysis emerging from 10 years experience of Daphne protocol utilization for the management of sexual assault victims.

Methods: From October 2006 since December 2016 a total of 90 victims of sexual assault were retrospectively investigated. Patients are divided into groups in relation to: gender, age, place of SA, number and type of assailant, nature of sexual assault, presence/absence of physical or genital injuries.

Results: Among victims 88 were females (97%) and 2 males (3%); 68 Italians (75.5%) and 22 foreigners (24.5%). At the time the events occurred, 42% ($n = 38$) of the victims were minors aged less than 16 years. In 11 cases, the age of the victim is not indicated. The assailant was an acquaintance of the victim in 65% of the cases (in 73% of these cases, the assailant was a family member). In 26 cases (28%) happened indoor, 44 cases happened outdoor and in 20 cases there were no data. Evidence of recent acute general body trauma (abrasions, bruises, lacerations) was found in 38 cases (42%); other types of injuries include: genital trauma (14 cases, 15%), genital and body traumas (49 cases, 54%) (tab. 1–2-). In 24 cases (26%) there were no injuries. Among genital trauma, we distinguished vulvo-vaginal lesions (68.5%) and anal lesions (31.5%). We have classified the minor victims using first Adam's classification and based on Adam's classification revised in 2015.

Conclusion: Application of the Ve.R.S.O project protocol changed and greatly improved health management of victims of violence. By following these procedures, violence and abuse are analyzed from every point of view, also for an appropriate assessment of the medium and long term health consequences of sexual assault. Only in this way are citizens provided with a high level of protection against gender violence, psychological support and prevention from any form of violence which takes place in respect of such vulnerable people.

Keywords: Sexual abuse, Medico-legal procedures, Genital trauma, Gender violence, Child, Protocol of sexual abuse

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Introduction

Sexual assault (SA) is any form of sexual contact or behavior that occurs without the explicit consent of the recipient of the unwanted sexual act (Ellison et al. 2008). It also includes all cases in which the individual, even if never physically touched, is exposed to an inappropriate sexual content or relationship with the abuser. SA is a worldwide problem that has not yet been sufficiently acknowledged or reported, as confirmed by analyses and studies carried out at different levels and in different contexts (Finkelhor 2005; Tanakaa et al. 2017; Ji et al. 2013). Sexual abuse in children is a global public health problem and violation of human rights, affecting children and woman of all ages, socio-economic levels, and cultural backgrounds that results in devastating health development and economic consequences for victims and society (Cattaneo et al. 2007; Gilbert et al. 2009). Data from Italian National Institute of Statistics (ISTAT) in 2015 state that in Italy about 6 millions women have been victims of some forms of violence, either physical or sexual, during their life, that is 31.5% of women aged 16–70. 20.2% has been victim of physical violence; 21% of sexual violence and 5.4% of the most serious forms of sexual violence such as rape and attempted rape: 652,000 women have been victims of rape; and 746,000 have been victims of attempted rape. 20.2% has been victim of physical violence; 21% of sexual violence and 5.4% of the most serious forms of sexual violence such as rape and attempted rape. Further, foreign women are victims of sexual or physical violence on a scale similar to Italian women's: 31.3 and 31.5%, respectively. However, physical violence is more frequent among the foreign women (25.7% vs. 19.6%), while sexual violence is more common among Italian women (21.5% vs. 16.2%). However, physical violence is more frequent among the foreign women (25.7% vs. 19.6%), while sexual violence is more common among Italian women (21.5% vs. 16.2%). As for the age of the victim, 10.6% of women have been victims of sexual violence prior to the age of 16 (ISTAT–Istituto Nazionale di Statistica 2015). The The WHO Multi-country Study on Women's Health and Domestic Violence against Women report 2005 highlight that the percentage of women who reported sexual abuse by a partner ranged from 6% in Japan and Serbia and Montenegro to 59% in Ethiopia, with the majority of settings falling between 10 and 50%. The proportion of women physically forced into intercourse ranged from 4% in Serbia and Montenegro to 46% in provincial Bangladesh and Ethiopia (Berry et al. 2014). A report, developed by the World Health Organization, the London School of Hygiene and Tropical Medicine and the South African Medical Research Council ad published on 2013 shows: overall, 35% of women worldwide have experienced either physical and/or sexual intimate partner violence or non-partner sexual violence and almost one third (30%) of all women who have been in a relationship have experienced physical and/or sexual violence by their intimate partner (WHO 2013). In recent years the phenomenon of sexual abuse and other forms of violence against women and minors has involved the political, healthcare and social organizations. While in our culture, the family is generally considered a safe, secure place, the violence is more frequently carried out at home and the assailant is often a person known by the victim; unfortunately it is sometimes a life threatening setting, involving victims of every age and cultural level, in different forms and degrees of abuse, causing physical damage and severe consequences with regard to mental health (Saint-Martin et al. 2007; Ingemann-Hansen et al. 2009). As defined by World Health Organization gender violence is 'the greatest public health issue and violation of human rights in the world; it is a violation of a person's physical and mental integrity (WHO 2014). SA is a traumatic life event in which the negative outcomes increase with increasing severity of abuse including physical maltreatment (McCauley et al. 1997) such us lacerations, fractures, genital mutilation, sexually transmitted diseases (Lacey 1990), gynecologic disorders (Walling et al. 1994; Golding et al. 1998) unwanted or pathological pregnancies (Murphy et al. 2001), depression (Wise et al. 2001), eating disorders (Goodwin et al. 2003), self-destructive behaviours (Alix et al. 2017) genito-urinary and sexual disorders (Vella et al. 2015), post- traumatic stress disorders (Kendler et al. 2000; MacMillan et al. 2001; Sprinter et al. 2007; Jonas et al. 2011; Gauthier-Duchesne et al. 2017; Bottomley et al. 1999). Internationally, different approaches are taken to the collection of forensic evidence and to the clinical and psychological assessment of alleged victims (Argo et al. 2012; Berry et al. 2014). Italian law n.96, 1996, foreseeing norms regarding rape and abuse, finally gave significant relevance to sex crimes, which were removed from the group of "crimes against morality and public decency" and classified rightly among "crimes against the person and against personal freedom". This very important standardization unifies the crimes of rape and indecent assault under the same generic category of "sexual assault crimes". In 2004, the European Commission for Justice Internal Affairs and Social Politics promoted a European program, called "Daphne II", with the aim to support the victims of sexual abuse, fighting and preventing violence, specially against children and women. In particular, Violence and Operative Healthcare Networks (Ve.R.S.O.) project, produced as the Italian part of the "Daphne II program", foresaw the development and practice of an integrated social and health services including social agencies, legal authorities and medical staff, police enforcement to create an effective specialized service for the management of sexual assault/abuse victims. The Ve.R.S.O project was incorporated into our daily

routine, and has been activated since 2006 at the Policlinic University Hospital of Palermo serving about 1.500 inhabitants of West Sicily Region. The principal purposes of the project was to set up a specific, improved health service for victims of sexual abuse and maltreatment, creating a dedicated clinical network to improve care for the victims.

We discuss, in our retrospective study a 10 years experience (October 2006 – December 2016) of a multidisciplinary team regarding application of the Ve.R.S.O. project protocol in the referral hospital of Palermo by using standardized guidelines (in different languages, such as Italian, French, English and Arabic) for management of the victims.

Methods

The Ve.R.S.O. project started in October 2006 at the Policlinico University Hospital of Palermo, by the Department of Legal Medicine in collaboration with the Departments of Emergency Gynaecology, Psychiatry, Surgery, Paediatrics and in cooperation with social agencies and legal authorities. Guidelines have been elaborated for standard practice in treating the victims in different languages (Italian, French, English and Arabic), a model of informed consent, interdisciplinary medical record and a standardized model of medical legal report. Since October 2006, the new standardized protocol has been adopted in the management of all rape/sexual assault victims. Patients are divided into groups in relation to: gender, age, place of SA, number and type of assailant, nature of sexual assault, presence/absence of physical or genital injuries. SA patients present to Accident & Emergency (A&E) in confusion, emotional distress and often without support. They are received in a private room and remain in their clothing, asked not to urinate, defecate, drink/eat or smoke prior to forensic examination, which takes place as soon as possible after the assault. First of all, it is necessary to obtain a history from the patient who has undergone SA and obtain the patient's consent during each step of the medical investigation (in the case of a minor, the history is collected with possible psychological support). Informed consent (specially designed for the purpose) informs the patient about benefits, risks and alternatives of medical evaluation and treatment (informed consent is not necessary in the case of a minor, according to Italian law on the subject of sexual abuse, as the offense is prosecutable ex officio). Consent also include reporting the crime to appropriate agencies, photodocumentation, evidentiary examination, pregnancy testing, sexually transmitted diseases (STDs) diagnosis and possible prophylaxis and emergency contraception. The following data are recorded in adopted standardized medico-legal report: various demographic information, circumstances surrounding the sexual assault (date, place, aggressor's identity when known, frequency of the assaults if repeated), type of assault (non-penetration assault, penetration, use of physical force), impaired consciousness at the time of assault, suspicion of drug-facilitated sexual assault, general physical examination, toxicology samples taken (blood, urine). Medical forensic history guides the evidentiary exam and is substantiated by the evidence collected. The risk of STD, including HIV and hepatitis, is discussed with every victim. Prophylactic treatment of sexually transmitted diseases (STDs) and emergency contraception are not routine preventative therapy after a SA: the decision should be made on an individual basis. With regard to contraception, hormonal post-coital contraception and insertion of an intrauterine contraceptive device are available.

The protocol also provides psychological and social support to the SA victim and ensures an adequate follow-up. Follow-up includes examinations to rule-out SDTs or pregnancy and information about social service for counseling and supporting. The specific flow chart of the operating procedure for taking charge of victims of violence, and a diagram of the systematic Forensic Examination can be found below (Figs. 1 and 2).

Results

Characteristics of the victims

During the study period, 90 suspected victims of rape/sexual assault were referred for examination, 88 females (97%) and 2 males (3%); 68 Italians (75.5%) and 22 foreigners (24.5%) (Fig. 3). At the time the events occurred, 42% ($n = 38$) of the victims were minors aged less than 16 years. In 11 cases, the age of the victim is not indicated (Fig. 4). Only in 60 cases (66%), the victims were examined within 72 h of the alleged events.

Circumstances of the assaults

The assailant was an acquaintance of the victim in 65% of the cases (in 73% of these cases, the assailant was a family member). In 26 cases (28%) the assault occurred indoor, 44 cases happened outdoor and in 20 cases there were no data. Three victims (8%) were affected by physically and mentally disorder. Eight percent of all the victims studied reported they had some diminution unconsciousness following the alleged events. Among them, four patients presented clinical signs suggestive of drug-related submission.

Clinical examination

Physical evidence of violence on the body (abrasions, bruises, lacerations) was found in 38 cases (42%); other types of injuries include: genital trauma (14 cases, 15%), genital and body traumas (49 cases, 54%). In 24 cases

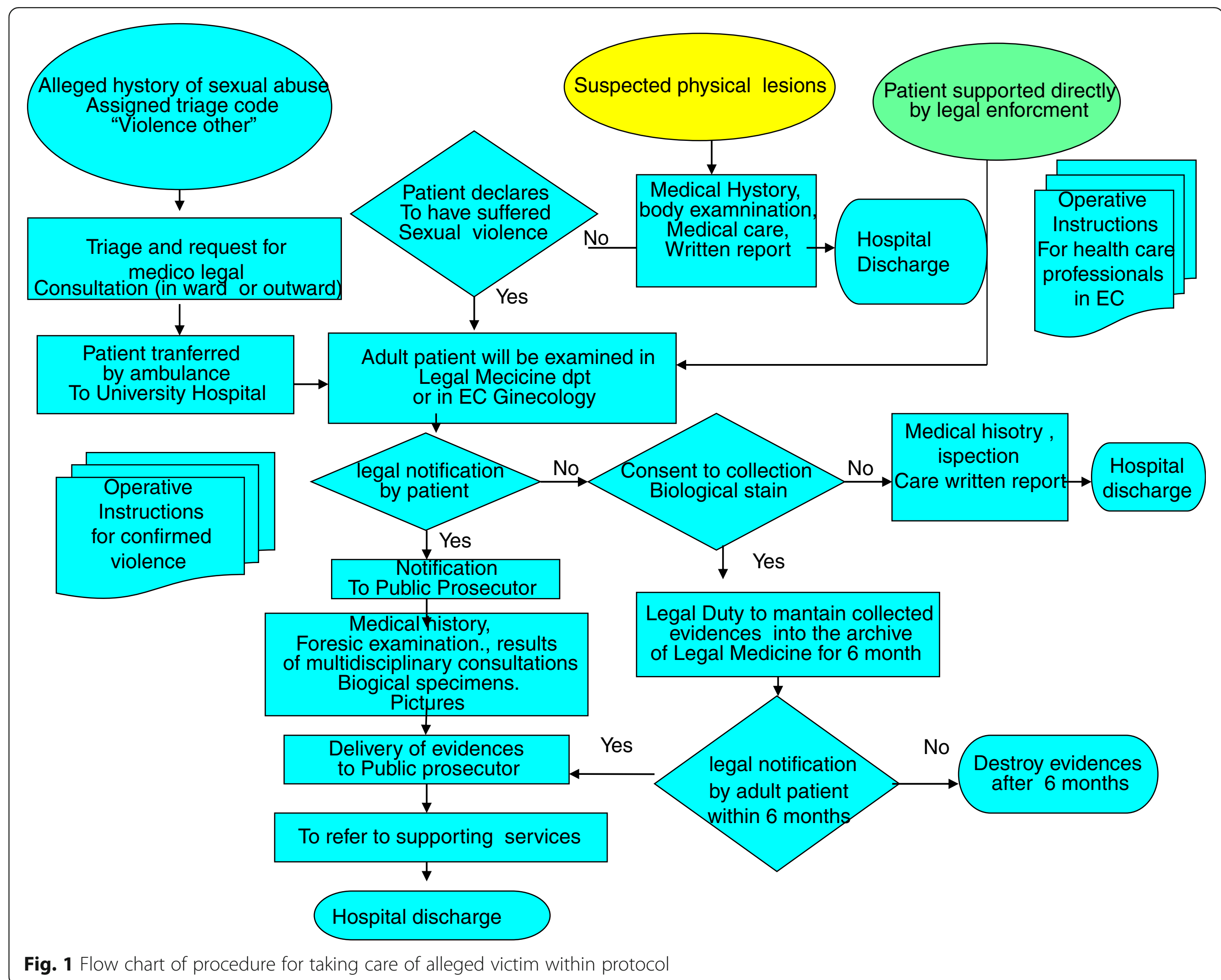

Fig. 1 Flow chart of procedure for taking care of alleged victim within protocol

(26%) there were no injuries (Fig. 5). Among genital trauma, we distinguished vulvo-vaginal lesions (68.5%) and anal lesions (31.5%) (Fig. 6) We have classified the minor victims using Adam's classification, which is based on anogenital findings in children with suspected sexual abuse (Adams et al. 2016). Physical examination of minors in "knee chest or frog position" was systematically performed. According to first Adam's classification (2004) 24 victims showed indeterminate findings, 21 signs concerning abuse and 5 victims presented a clear evidence of blunt force or penetrating trauma to or beyond the hymen, the majority of cases represents normal findings or unrelated to abuse (Table 1). Based on Adam's classification revised in 2015 (Table 1) 24 victims showed indeterminate findings, 26 showed a findings diagnostic of trauma and/or sexual contact (6 victims presents a clear evidence of blunt force or penetrating trauma to or beyond the hymen; 20 victims signs concerning sexual abuse such us acute abrasion or laceration of navicularis fossa and peri-hymeneal tissue or hymeneal or laceration) and in two case a positive urine pregnancy test was found. The majority of cases represents findings commonly seen in non-abused children.

Discussion

The results of our experience as reported by the national statistic of Rape, Abuse & Incest National Network on 2015 and by a report of UK office for National Statistics published on 2016 (The Rape, Abuse, and Incest National Network 2015; UK Office for National Statistics 2016) highlighted that the ages 12–34 are the highest risk years for rape and sexual assault and that sexual violence affects victims' relationships with their family, friends, and co-workers (Hassan et al. 2007; Stermac et al. 1995; Jones et al. 2004). The identification, diagnosis and management of victims who have suffered sexual involved a

CLINICAL FORENSIC EXAMINATION

ADULT PATIENT TRIAGE
OF ALLEGED SEXUAL VIOLENCE

First
Health care support

Medical History
- Circumstances of aggression
- Manner of assault
- Note of Self hygiene after SA and dressed change

Clinical examination

General clinical examination
-Life, Emotional and psycological support
- Collection of physical injuries
- Pictures

Collection
- Briefs
- Clothes
- Hair
- Particulates …

Genital examination
- Big and small labia-
- Perineum
- Forchet
- Hymen (Shape, notches, abrasions, bruises)
- Vagina
- Uterus and annexes
- Anal region (ulceration, bruises, sphynx ton)
Instrumental tests if necessary

legal notification by Patient to Public Prosecutor

Laboratory tests

Sperm samples and Scraping

Bacteriological vaginal tests

Blood Samples For STDS

Toxicological examinations
–Urine,
- Blood, hair

Prophilaxis (one dose):
Ceftriaxone 250 mg (i.m.)
Azitromicina 1 gr (per os)

Pregnancy Tests

Possibly prophilaxis post HIV exposure

Post coital contraception

Fig. 2 Clinical and forensic examination

multidisciplinary approach and the use of a standardized procedures. The diagnosis of sexual assault/abuse is difficult and it is rarely possible to confirm or refute the history of sexual violence based only on gynecological examination or inspection (Saint-Martin et al. 2007) International literature reports that about 50–90% of women and minors who are victims of ascertained sexual abuse show non-specific genital and/or anal evidence (Sommers 2007). Hence, the evaluation of many cases of sexual assault requires not only anatomical-clinical knowledge, but also specific forensic medicine expertise in order to collect the physical evidences of sexual abuse (Argo et al. 2012).

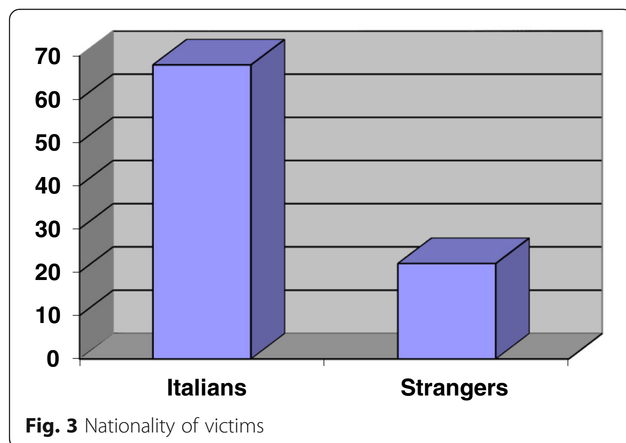

Fig. 3 Nationality of victims

Fewer studies were found describing identification in relation to sexual violence (Berry et al. 2014). All studies - as our results-highlighted that it is important to carry out an objective description of the lesion and biological evidence collected during the visit for judicial proceedings.

Sometimes, instead, negative or non-specific physical examination findings are ascribable to the lack of experience of health operators (traumatic lesions erroneously classified as inflammatory lesions, anatomical anomalies) (Adams et al. 2004; Stewart 2011). Inquiry into sexual abuse in children is particularly complicated, as many children do not report the abuse (Lanzarone et al. 2017). In these cases, in

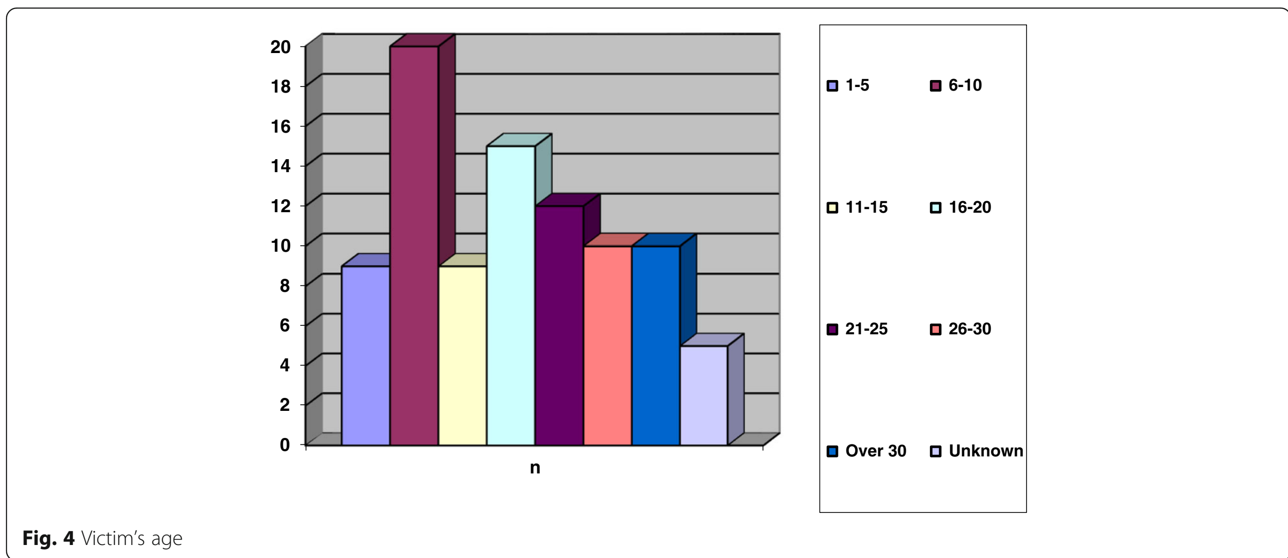

Fig. 4 Victim's age

fact, further difficulties regard the time that may elapse between sexual violence and physical examination: the greater the time interval, the lower the possibility of detecting signs of physical violence. The new Adam's classification unify the third and fourth classes as they are now comprise in the type "findings diagnostic"; so they are concretely more clear for medical examiner. Moreover, identification of sexually transmitted infections (STIs) in minors, in addition to many technical difficulties in taking biological samples, can have serious medical and legal implications, such as notice obligation to a minor's legal authority (Argo et al. 2012). According to international literature and with the latest data on sexual assault in children and woman, the message to forensic and clinical pathologists is clear: many abused children present aspecific signs, in very few cases are there signs which clearly reveal the abuse; such an evaluation must be very carefully performed by an experienced examiner with knowledge of the normal anatomy of a child and pathological conditions that simulate injuries caused by sexual abuse (Modelli et al. 2012). Given the drama of the phenomenon of sexual assault/abuse against women and minors and the frequent difficulties of interpretation, the international Scientific Societies have found it necessary to develop guidelines for the investigation of suspected cases of sexual violence. In this way, the "Ve.R.S.O.: Network integration" project has a strong point which is also a key objective: the sharing of procedures in the Operating Units/ Hospitals directly involved in the care of victims of abuse.

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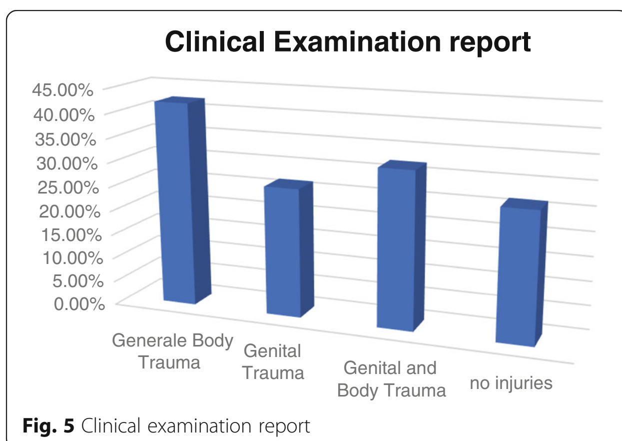

Fig. 5 Clinical examination report

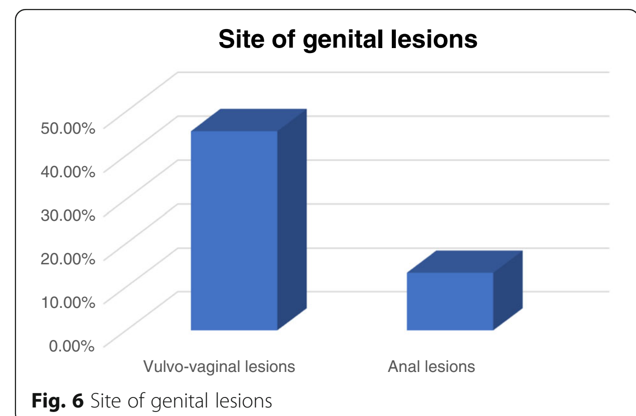

Fig. 6 Site of genital lesions

Table 1 Adam's classification of the victims

Adam's classification 2004		Adam's classification revised version 2015	
Class	Victims	Findings in suspected child sexual abuse	Victims
Class 1 Normal or unrelated to abuse	40	Findings commonly seen in non abused children	40
Class 2 No specific signs	24	Findings with no expert consensus on interpretation with respect to sexual contact or trauma	24
Class 3 Signs concerning for abuse	21	Findings Diagnostic of Trauma and/or Sexual Contact	26
Class 4 Clear evidence of blunt force or penetrating trauma to or behind the hymen	5		

sexual abuse though a multidisciplinary approach. Other objectives include:

- raising awareness of the operators involved and the improvement of their technical and professional skills;
- a wider knowledge of procedures and competencies in health care professionals involved in care of victims;
- to strengthen an integrated procedure to assist the victims. Specific training is programmed in order to let the representatives of the various Operating Units/Hospitals of the network acquire interdisciplinary tools, useful for evaluating and treating the victims of abuse and maltreatment.

The adoption of standardized protocol of documented physical injury is associated with positive legal outcome in cases of sexual assault and to determine other factors associated with the laying of charges in such cases (Gray-Eurom et al. 2002; Grossin et al. 2003; Wiley et al. 2003; McGregor et al. 1999; Edgardh et al. 1999; Du Mont and Parnis 2000; McGregor et al. 2002; Rini et al. 2017). Our report confirms that the realization of the adopted protocol and procedures in the context of the Ve.R.S.O. project may facilitate a management of health care and support of the victims of rape/sexual assault and – in this perspective – it is essential to promote training of health care professional of a multidisciplinary team in emergency care. An effective implementation of legislation of this matter, by continuing learning skills could favor the emergence of the phenomenon of sexual abuse and an effective protection of the victims.

Conclusion

The implementation of the Ve.R.S.O project protocol greatly improved health management of victims of sexual violence in emergency care in ward setting. The application of standardized procedures of evidence collection of clinical/biological data, as indicated, may support a forensic management of alleged victims. It is essential in the future to continue to promote training and retraining of health personnel of a multidisciplinary team. The activity of integrated network services with local structures of support for taking care of the victims of abuse needs to be enhanced and guaranteed. Only in this way are citizens provided with a high level of protection against gender violence, psychological support and prevention from any form of violence which takes place in respect of such vulnerable people.

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Availability of data and materials
The data sets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Authors' contributions
SZ (MD, aggregate professor of legal medicine), AA (Prof. of Legal Medicine) and EVS (Researcher) established retrospective study design; SZ and AA equally contributed to his paper; DP (Biological Doctor, grant for research) performed record data gathering and filled into excel files and analyzed by statistic support (IBM SPSS Statistic version 2.0); SZ, AA, ES and LM performed medical activity. SP, Biological senior research is responsible for forensic genetics and performed all laboratory data evaluation; RN is senior research of child neuropsychiatry attending to Policlinic Hospital and review data of minor patients; all authors reviewed and approved the study in this final form.

Ethics approval and consent to participate
All patients within protocol Daphne –Ve.R.So (and specific medical record approved by Hospital Commitment) gave consent. As this study involves only anonymous data of patients and is not experimental, the approval of the Ethics Committee is not required, ethics approval for this type of retrospective study is not required under Italian law.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

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