Signs of physical abuse and neglect in the mature patient

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Abstract Neglect and physical abuse of elderly are worrisome health problems, which are expected to grow even further, considering the aging of the population. By 2060, the number of people aged above 65 years is expected to double, whereas birth rates are low. This trend will cause a significant imbalance between different age groups and put more senior adults at risk for abuse. Risk factors, associated with abuse and neglect, are well established and can be categorized in sociodemographic-, victim-, or perpetrator-related risk factors. The effects of these risk factors depend mainly on the setting, which can be community-dwelling or institutionalized older adults. In community-based settings, 90% of perpetrators are family members. In each setting, suspicious physical injuries should be recognized and addressed promptly. This can be very challenging in elderly, among others, due to the age-related skin changes, which can mimic abuse; however, there are some cutaneous clues that should always raise suspicion of abuse, such as patterned shape or distribution, different healing stages of wounds, parallel injuries, signs of blunt trauma, and irregular patches of alopecia. General awareness is needed, and the advice of dermatologists, who are best trained to differentiate between those lesions, should be systematically sought, to reduce false-positive and false-negative interpretations.

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Introduction

Physical abuse and neglect in the elderly are serious public health problems, which will become even more visible in the future due to the growing imbalance between different age groups, resulting in an increasing health care burden on informal caregivers. The elder are one of the most vulnerable groups in the general population, mainly due to increasing social isolation and their dependence on caregivers.1 Physical abuse in this fragile population might not be limited to pain and emotional distress but can contribute to morbidity and even lead to increased mortality.

The World Health Organization defined elder abuse in the Toronto declaration of 2002 as “a single or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person. It can be of various forms: physical, psychological, emotional, sexual, and financial, or simply reflect intentional or unintentional neglect.”2

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The most common form of elder abuse is neglect. Neglect can be active or passive and is defined as “the refusal or failure by those responsible to provide a care dependent older adult with assistance in daily living tasks, or essential support such as food, clothing, shelter, health and medical care. This can include desertion of a care-dependent older adult, also called abandonment.”

The most visible form of elder abuse is physical abuse, which is defined as “actions intended to cause physical pain or injury to an older adult, such as pushing, grabbing, slapping, hitting, or assaulting with a weapon or thrown object.”

General practitioners are the first in line to notice these types of mistreatment; however, dermatologists are more trained to recognize suspicious skin and mucosal lesions. As a result, all dermatologists should be aware of this rising problem and should keep signs of neglect and abuse in mind while performing a full-body examination of the skin.

Although systematic screening has not been recommended, due to high risks of false interpretation of the lesions, dermatologists might play a particular role in case finding. To the best of our knowledge, no studies have been carried out to examine the effectiveness of screening for elder abuse by dermatologists.

Epidemiology

Aging of the population is a worrisome public health problem that will become even more visible in the near future. Longer life expectancies and the current trend of low birth rates are the main reasons for this future imbalance between age groups. In 2015, the prevalence of people aged above 65 years was estimated at 12% of the U.S. population or 47 million people; this number is expected to increase to 98 million people aged above 65 years by 2060.

The prevalence of abuse is difficult to estimate due to the use of different definitions of elder abuse in population studies. In the United States, a systematic review in 2015 reported a prevalence of 10% of abuse in cognitive intact elderly.

The incidence of physical abuse and neglect in elderly in the United States was estimated at 2% to 10%; however, this is most likely an underestimation, as many cases probably are not reported to the Adult Protective Services. Factors contributing to the underreporting of abuse include denial and feelings of shame by the victims, fear of retaliation, and lack of recognition by doctors and disbelief in the general surrounding. Awareness and recognition of warning signs of neglect and physical abuse in elderly will become increasingly important in the future.

In the community setting, about 80% of care is provided by informal caregivers, and 90% of all abusers are family members, such as the spouse or an adult child of the victim. Consequently, abuse in this setting is mainly related to the patient’s condition, the resulting caregiver burden that becomes too difficult to be managed, and the personal profile of the proxy. Elder abuse can also take place in institutions (eg, nursing homes and hospitals) and can be caused by professional caregivers; in these settings, abuse appears to be related mainly to the caregiver’s personal profile. Abuse by a total stranger is not considered as elder mistreatment, because there is no expectation of responsibility toward the victim.

Risk factors

Some risk factors are direct consequences of the dynamic changes in sociodemographic factors. Other risk factors are associated with the characteristics of the potential victims or of the potential abusive caretakers.

Sociodemographic factors

Traditionally, older people were viewed as wise and were highly respected, whereas nowadays the importance of age roles is decreasing, and the elderly are generally viewed as a burden. As a consequence, a widely prevalent attitude toward elderly is called “ageism” and is characterized by minimizing complaints of elderly and lacking of concern for their rights and needs, as well as refuting treatments based purely on chronological age rather than medical evidence.

Increased intrafamilial stress due to familial disputes is an important risk factor for elder abuse. Increasing rates of divorce and families composed of multiple parents may lead to conflicts of interest and disputes, increasing the risk for elder abuse.

Improving socioeconomic conditions have led to increases in overall lifespan, and new medical technologies and pharmacologic treatments lead to increased life expectancy at older age. Consequently, increasing numbers of chronic diseases, frailty, and dependence on the caretaker increase the risk of abuse.

Risk factors for victim of abuse (Table 1)

- Cognitive impairment (eg, dementia): Sixty percent of older people with dementia have experienced some

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Victim</th>
<th>Perpetrator</th>
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<tbody>
<tr>
<td>Female sex</td>
<td>Not sex specific</td>
<td>Not sex specific</td>
</tr>
<tr>
<td>&gt;80 years old</td>
<td>Not age specific</td>
<td>Not race specific</td>
</tr>
<tr>
<td>Nonwhite race</td>
<td>Not race specific</td>
<td>Depression</td>
</tr>
<tr>
<td>Dementia</td>
<td>Shared living situation</td>
<td>Lack of social support</td>
</tr>
<tr>
<td>Social isolation</td>
<td>Social isolation</td>
<td>Financial dependence</td>
</tr>
<tr>
<td>Low socioeconomic status</td>
<td>Functional disorder</td>
<td>Substance abuse</td>
</tr>
<tr>
<td>Functional disability</td>
<td>History of violence</td>
<td>History of violence</td>
</tr>
</tbody>
</table>

Table 1 Risk factors for victims of abuse vs. perpetrator’s risk factor for abuse


form of abuse. Dementia often leads to disruptive behavior of elderly, which can provoke negative reactions by the caretaker. It is often underreported, because victims do not recognize or remember the offenses.11,12

- Sex: Women are more at risk than men for all types of abuse except for self-neglect.
- Age >80 years: With increasing age the proportion of frail elderly increase, who are at higher risk for abuse. In the National Elder Abuse Incidence Study (NEAIS), 50% of reports on neglect and abuse occurred in people aged >80 years.13
- Nonwhite race: African Americans are at higher risk to become victims of abuse.
- Low socioeconomic status
- Functional disability
- Social isolation from relatives and family11,12; Social isolation can create a feeling of loneliness in older adults. This lack of social support, which should directly surround older adults, puts them more at risk for abusive situations.
- Shared living situation: Shared living creates more tensions and direct conflicts between different age groups.11,12

**Caretaker risk factors**2,11,12,14 (Table 1)

- Shared living situation
- Emotional or financial dependence on the older person
- Mental health problems (eg, depression)
- Alcohol or substance abuse
- Lack of social support
- High level of stress
- Excessive workload (eg, nursing home)
- Lack of training in how to care for older people
- History of violence

**Role of the dermatologist**

Dermatologist should be able to recognize the red flags of elder abuse when examining older adults. They should know to whom address these situations and what further steps to take to ensure the safety of the victim.

As many elderly develop skin problems, a dermatologist should be able to distinguish between normal skin aging and current age-related pathology, which can mimic abuse, and red flags suggestive of abuse. It may not always be simple to differentiate between these two, because there are no pathognomonic signs of elder abuse. The three forms of abuse that result in visible injuries are physical abuse, sexual abuse, and neglect.

In 2008, the Elder Abuse Suspicion Index was developed as a screening tool in the elderly who are not cognitively impaired. It is based on six questions, five of which are to be answered by the patient. One positive response in the five last questions indicates the need of further investigation15 (Table 2); however, awareness is paramount, and simply inquiring about elder mistreatment may constitute an acceptable alternative to the use of the Elder Abuse Suspicion Index.

When the suspicion of elder abuse is high, it is important to obtain a comprehensive history of the victim in the absence of the caretaker; however, in victims with cognitive impairment this might not be possible. If neglect is suspected, the financial and social resources of the victim should be analyzed.12

**Types of abuse**

The World Health Organization defined elder abuse in the Toronto declaration of 2002 as “a single or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person. It can be of various forms: physical, psychological, emotional, sexual, and financial, or simply reflect intentional or unintentional neglect.”

The three types of abuse that result in visible physical injuries are discussed in the following subsections; however, in reality there is often no clear-cut distinction between types of abuse, and most cases fall into a gray area between abuse and neglect.

**Physical abuse**

Physical abuse is the most visible form of abuse in elderly. Physical forces are used to cause injury, disease, physical pain, or impairment to the victim.

If there are suspicious lesions, for example, bruises, lacerations, abrasions, fractures, or burns, “pattern analysis” of the injury should be done to rule out accidental injuries. In forensic examinations, pattern analysis is always used to check if
the injury is consistent with the history. Multiple and irregular shapes of the lesions should always raise suspicion; nonetheless, there are no pathognomonic signs of elder abuse.11

**Sexual abuse**

Sexual abuse is defined as “nonconsensual intimate contact of any kind with an elder.” Especially elderly are at risk for sexual abuse, as they may be too powerless to resist assaults or may be unable to indicate or report the abuse due to cognitive impairment.16

**Neglect**

Neglect is defined as “the failure of a caretaker to provide the goods or services that are necessary for daily functioning of the victim or to avoid harm.”17 Neglect can be intentional or unintentional, as the result of incompetence to provide adequate care by the caretaker.

Multiple decubitus ulcers and signs of dehydration or starvation may indicate severe neglect; however, if neglect by the caretaker becomes so serious that no adequate medical care was provided, it is considered as physical abuse by the caretaker and no longer as neglect.

**Age-related skin changes versus markers of abuse**

When examining the elderly, it is important to differentiate between normal age-related skin changes and skin changes caused by physical abuse. The fragility of aging skin and the more common use of oral anticoagulation medication in the elderly can lead to more severe bruising that can mimic physical abuse.11

When confronted with suspicious lesions, comprehensive history should be taken to find out exactly how this lesion has appeared and if the history is consistent with the physical examination; however, age-related skin changes must always be kept in mind while performing a skin examination before being suspicious, as bruises are the most common accidental injury in elderly.

The following general clues are associated with elder abuse and should raise further questions: patterned shape or distribution, different healing stages of lesions (eg, healing by secondary intention), signs of a blunt trauma, parallel injuries, “tram lines,” and irregular patches of alopecia18 (Table 3).

**Abrasions and lacerations**

Abrasions are superficial injuries to the outer layer of the skin, which are the result of friction. The most common forms of abrasions seen in elderly are skin tears, which are characterized by a skin flap. These are most frequently seen on the back of hands or arms, are not suspicious for elder abuse, and usually heal without scarring. Skin tears can occur with only little friction, because aged skin is less thick, less elastic, and more fragile.7

Abrasions can be seen in elder abuse, when the elderly are punched, pulled, or dragged across a rough surface. The pattern of injury can easily be recognized in abrasion lesions, which makes it simpler to distinguish abuse from accidental abrasions.7 If no pattern of injury is recognized, it can be very difficult to differentiate with accidental abrasions, which also occur very often. If the location of the abrasion is suspicious and not on the extremities or multiple skin tears are present, suspicion for elder abuse should be raised.

Lacerations, which are characterized by full-thickness splitting of the skin, are the result of crushing forces in blunt trauma mechanisms. Typical signs of lacerations are “tissue bridging,” irregular shapes, and contused margins.17

If elder abuse is suspected, careful inspection of the laceration is necessary. The proposed mechanism of injury causing laceration should be consistent with the physical injury. To be consistent, the margin of the laceration away from the blow direction should be less harmed, if otherwise the laceration has not been induced by the proposed mechanism (eg, if the blow direction is upward, the lower margin should be less harmed).19 The location of the laceration can also be a clue for abuse; suspicion should be high when it is located around the eye, nose, or mouth.

**Bruises**

Bruises are the result of direct blunt forces applied to the skin, which are causing ruptures of the subcutaneous blood vessels, leading to a visible hematoma. In aging skin, blood vessels are tearing more easily, and because many elderly take anticoagulating medications, bruises can be more pronounced and severe in aging skin without being suspicious. Prior or actual glucocorticoid treatment may contribute to the occurrence of skin atrophy and bruises as well. Keep in mind that one in three individuals aged 65 years or above will fall at least once a year, that this proportion rises to 50% in individuals aged 80 years or more, and that it is even higher in nursing homes and hospitals.

Due to the fragility of atrophic skin and blood vessels in aging skin, less pressure is needed on the skin surface of the elderly to cause bruising compared with younger skin. Bruising can even occur spontaneously in the elderly, in the absence of known trauma. Bruises are very common

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Red flags for elder abuse18</th>
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<tbody>
<tr>
<td>General cutaneous clues</td>
<td>Patterned shape or distribution</td>
</tr>
<tr>
<td>Different healing stages of lesions, eg, healing by secondary intention</td>
<td>Signs of a blunt trauma</td>
</tr>
<tr>
<td>Parallel injuries</td>
<td>“Tram lines”</td>
</tr>
<tr>
<td>Irregular patches of alopecia</td>
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</tbody>
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accidental findings in the elderly, and 90% of these are located on the extremities. The color of a bruise is not reliable for its age in the elderly, as a bruise can take up to several months to resolve, whereas in younger people, it takes only several weeks.\textsuperscript{20}

Some characteristics of bruising should be regarded as red flags (Table 4) for further investigation when examining the patient. First of all, if a bruise is located on the face, ears, genitalia, buttocks, soles, side of right arm, or the back, it is unlikely to be accidental.\textsuperscript{21} Abusive caretakers will often attribute these suspicious bruises to a fall. Second, if a pattern injury is recognized, which is most likely caused by blunt trauma from objects such as belts, sticks, and shoes, it is highly suggestive of physical abuse. Third, a bruise larger than 5 cm in diameter in the absence of a documented fall should raise suspicion.\textsuperscript{11}

In general, if bruises occur in places that cannot be explained by an accidental external injury on aging skin, suspicion for physical abuse should be high; for example, if a patient who is wheelchair bound suddenly presents to the clinic with bruises on the inner part of the thighs or on the dorsal surface of the feet, physical abuse should be suspected.\textsuperscript{14}

There are some cases in which it is not clear whether the skin changes are due to physical abuse, normal aging and fragility of the skin, or a vascular skin disease. In doubt, the patient should be referred to a dermatologist who has more expertise in the differential diagnosis of the above. Some type of purpura can mimic physical abuse, and it is important for a dermatologist to differentiate between the possible causes of purpura in elderly. Purpura can be harmless when resulting from fragility of aging skin, typically appearing on the extremities after receiving aid from a caretaker. Senile purpura is also located on the extremities, mostly on the sun-exposed extensor surfaces of the forearms, and is a result of chronic photodamage of the extracellular matrix.\textsuperscript{22} Similarly, steroid purpura can be seen on atrophic skin surfaces, damaged by the use of chronic topical steroids.\textsuperscript{23} Unlike the sequelae of physical abuse, senile and steroid purpura are limited to the areas of exposure to sun and topical corticoids. Another more severe differential diagnosis that should be kept in mind is vasculitis; when this is suspected, a skin biopsy is necessary.

### Table 4

<table>
<thead>
<tr>
<th>Red flags in bruising</th>
<th>Suspicious locations:</th>
</tr>
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<tbody>
<tr>
<td>“Pattern injury”</td>
<td>Face and ears</td>
</tr>
<tr>
<td></td>
<td>Buttocks</td>
</tr>
<tr>
<td>&gt;5 cm large</td>
<td>Soles</td>
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<td></td>
<td>Side of right arm</td>
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<td>Back</td>
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In burns, skin tissues are destructed after exposure to heat above 50 degrees Celsius. In the elderly, burns can be forensic markers of abuse or neglect. Some population studies show that 40% to 70% of burn wounds in patients aged 60 years or older are caused by abuse or (self-)neglect.\textsuperscript{17}

Burns in elder abuse are classically “pattern injuries.” Imersion burns, typically appearing in stocking and glove distribution, are highly suggestive of elder abuse. Cigarette burns also cause typical patterns of burn, which resemble the surface of a cigarette.\textsuperscript{11}

Severe burns are associated with erythema and bullae. Some skin diseases can mimic burn injuries; therefore, it is important to differentiate burns from other potential blistering diseases. First, severe contact dermatitis to new shoes can resemble a burn injury; however, in contact dermatitis, severe pruritus is the clue. Second, friction blisters, which are more easily formed in older fragile skin, can also mimic a burn injury, although the skin is less tender than in burns. Third, if more generalized blistering occurs, autoimmune blistering diseases should be kept in mind with prompt referral to a dermatologist, as adequate treatment may be urgently required.\textsuperscript{12}

### Fractures

The bone of the elderly has similar aging signs as the skin; it becomes thinner and less dense, which makes it more susceptible to fractures. Among others, the following factors contribute to the development of osteoporosis and fractures: malnutrition, low vitamin D levels, alcoholism, smoking, hormone deficiencies (early menopause in women or testosterone deficiency in men), and specific endocrine (eg, primary hyperparathyroidism) and rheumatoid diseases (eg, rheumatoid arthritis); however, the majority of fractures occur in patients with osteopenia and thus in patients without known osteoporosis.

In elderly patients, spontaneous vertebral fractures due to osteoporosis are not exceptional, but most osteoporotic fractures (especially hip and wrist fractures) are the consequence of falls. More than 50% of older people in nursing homes present with at least one fall per year, and so falls themselves should not be considered as a sign of abuse. Although typical osteoporotic fractures may also be induced by physical abuse, they should not systematically raise suspicion for abuse.\textsuperscript{17}

If a spiral fracture of long bones or a fracture in other sites than wrists, vertebrae, and hips is seen in elderly, who are free from alcohol or other substance abuses, suspicion for physical abuse should be high.\textsuperscript{7} Typically fractures of the zygomatic arch, mandible, and maxilla may be signs of physical abuse.

### Restraints

Even though clinical guidelines state that physical restraints should be avoided as much as possible and that fall prevention
is not a valid indication for physical restraints, the latter are still frequently used in institutional settings to control hazardous behavior of older residents. Although insufficient fixation may lead to serious incidents, restraints may not be so tight that they completely block any movement and excessive compression or friction may induce severe complications as well. The use of physical restraints must be accompanied by increased surveillance of the individual patient, the indication must be evaluated at least on a daily basis, and the duration should be limited as much as possible.\textsuperscript{11,17}

If restraints are so tight that they leave ligature marks, typically around wrists and ankles, elder abuse should be suspected. In some cases, restraints are used as a tool to make the elder more dependent on the caretaker, thus associating neglect and physical abuse.\textsuperscript{17}

**Decubitus ulcers**

Decubitus ulcers, sometimes referred to as pressure sores or bedsores, are defects in the skin that occur when pressure on the circulating blood vessels is too high to provide adequate blood flow to the skin. Most common locations are the sacrum, hips, and heels.\textsuperscript{17}

Decubitus ulcers are common in elderly, especially in institutional settings, with prevalence rates ranging between less than 10\% and more than 50\% in nursing homes, and 7\% and 23\% in hospitals. Prolonged hospitalization and long immobilization of the patient are risk factors.

The ulcer itself cannot be viewed as a sign of neglect; however, it may occur more easily if the standard of care in a patient at risk is not taken. Lack of repositioning by the caretakers may be responsible for ulceration in combination with many other factors. Deep- and/or foul-smelling necrotic ulcers should raise suspicion of neglect, as they indicate long-standing absence of adequate care.\textsuperscript{17}

**Traumatic alopecia**

Androgenic alopecia is a normal, age-related type of alopecia. In typical male-pattern loss, the alopecia occurs around the vertex and frontotemporal area. In female-pattern hair loss, there is generalized thinning of the hair mainly around the vertex.

If one or more patchy areas of alopecia are present in elderly, outside of the pattern described in the preceding paragraph, abuse may be suspected. Hemorrhages or hematomas present at the site of hair loss are even more suspicious for abuse.\textsuperscript{11}

Other forms of alopecia, which are not caused by abuse, can mimic patchy areas of alopecia if the observer is not knowledgeable of hair loss, that is, alopecia areata, tinea capitis, and traction alopecia.

**Malnutrition**

Neglect is much more common than abuse in elderly. In 2002 the prevalence of malnutrition in institutionalized elderly was estimated at 37\% versus 1\% in community-based elderly.\textsuperscript{24} Although this may partly be attributed to anorexia of old age and chronic inflammation due to multiple comorbidities, a high workload in nursing homes with inadequate time and staff to provide assistance with eating may contribute to the problem.\textsuperscript{17}

Malnutrition is the most important marker of (self-)neglect in elderly. Needless to say, malnutrition should be avoided, especially in frail older people, because it can lead to several cutaneous findings that decrease the individual’s quality of life. Nutritional deficiencies, in general, may contribute to poor wound healing and prolong the healing process for decubitus ulcers. Second, nutritional deficiencies can cause specific cutaneous findings. These typical skin signs, although infrequently encountered, should raise suspicion of neglect and should be promptly cured by administering the right supplements; for example, vitamin A deficiency can cause phrynoderma, which resembles keratosis pilaris; vitamin C or K deficiency can cause purpura or petechiae; biotin or zinc deficiency can cause periorificial lesions; and iron, vitamin B12, or folic acid deficiency can cause glossitis or cheilitis.\textsuperscript{14}

Acral dermatitis can be a sign of neglect, as it results from zinc deficiency; however, the differential diagnosis of acral dermatitis is complex and includes drug side effects, paraneoplastic syndromes, and contact dermatitis.\textsuperscript{14}

**Scabies**

In the elderly, the presentation of scabies can be quite misleading as the typical localization of the lesions is altered; burrows do not appear in the finger web areas and popular lesions can involve face and trunk. Crusted lesions can be seen in the Norwegian scabies infection. Despite the localization, every new onset of severe pruritus in elderly should raise suspicion for scabies. The pruritus is typically more pronounced at night and less on the scalp. Identification of the index patient in nursing homes is mandatory to avoid outbreaks.\textsuperscript{25,26}

**Sexual abuse**

Sexual abuse is known to be the most hidden form of abuse and its prevalence is even higher in the elderly. Same oral, genitai, and nongenital lesions as seen in younger victims should raise suspicion of sexual abuse.

In the elderly, intimate kissing, unwanted sexual touching, and peeping at specific body parts by caretakers are the most common forms of sexual abuse; however, they do not leave any visible signs.\textsuperscript{27} Patterns of injury should be recognized in vaginal rape and penetration; these patterns can be altered due to physiological changes of the vaginal mucosa with age.\textsuperscript{7} Fingertip-patterned abrasions and bruises located on the inner thighs of the victim should raise suspicion of forced thigh opening of the victim.\textsuperscript{28} Genital trauma with laceration of the vaginal mucosa should not be mistaken for lichen sclerosus, which can cause clitoral hooding and fusion of the labia minora and majora.\textsuperscript{29}
New onset of venereal diseases in the elderly should raise suspicion of sexual abuse. If genital erosive ulcerations are present, they should be differentiated from erosive mucosal lichen planus, Behçet disease, and squamous cell carcinoma. If oral erosive ulcerations, bruises of the uvula, or the palate are present, they are highly suggestive of forced oral copulation by the perpetrator.

Sudden pain or bleeding of the anogenital area and impaired walking of elderly should raise suspicion of anal abuse; however, anal fissures secondary to constipation in the elderly are very common and should first be excluded.

Conclusions

Increased awareness for neglect and physical abuse in the elderly is important for the dermatology community, because dermatologists are specially trained to differentiate skin lesions due to normal signs of aging and current pathology from neglect and abuse. Because family practitioners, geriatricians, and the lay public are the first to encounter those lesions, increased knowledge about the high prevalence and signs of neglect and physical abuse in the elderly is important. Institutions caring for the elderly should be aware of the problem and need to install systems of prevention and detection.

Clinically, besides signs of malnutrition and decubitus ulcers, skin lesions with patterned shape or different healing stages, as well parallel injuries and irregular patches of alopecia and burns, are red flags, which need to make the clinician suspicious of abuse. Interdisciplinary collaboration between family practitioners, geriatricians, social workers, and dermatologists are recommended.

References