HUMAN TO HUMAN BITES
ASSOCIATED WITH CLINICAL RABIES

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ABSTRACT.

A patient with clinical rabies inflicted severe bite wounds on a care giver, for whom rabies post exposure treatment (PET) was prescribed. The incident was investigated and the circumstances of the human-to-human bite are described. The failure of proper referral of rabies suspects is exposed. An attempt to justify PET is also made.

1 INTRODUCTION.

Rabies is still a public health concern in Uganda, where on average 15 human deaths are recorded per year. World wide this number is estimated to be between 35000 annually (WHO, WSR 1996).

The most important vector of the disease is the dog. in Africa 93% of all human PET were due to dogs (Warrel, 1994). In Tanzania more than 90% of all confirmed cases of rabies originated from dogs and only 3.4% from wildlife (Loretu, 1988). In Uganda, dogs accounted for 95.8% of the 5418 PET given between 1990 and 1994. In the same period three (0.06%) PET were given after human to human bite incidents involving clinically rabid children biting their mothers, according to Ministry of Health surveillance report.

Three more human-to-human bites necessitating PET were reported in Luwero, Mubende and Pailisa districts in 1996. These reports were more thoroughly investigated and the Mubende case is hereby presented.

2 METHODS.

Interviews were held with the human bite victim, hospital staff, relatives and local leaders from where the index case hailed. Also interviewed were the district health and veterinary oficials. Case notes of both the index case and the human bite victim were reviewed. The investigations were carried out retrospectively to establish :

(i) The nature and circumstances of the exposure of the index case.
(ii) The vaccination and ownership status of the animal initially exposing the index case.
(iii) The management and referral of the index case.
(iv) The final outcome of the bite incident.

3 RESULTS.

Subject No.1 was an 8 year old boy who was brought to Entebbe Grade "A" Hospital on 18/6/96. He was extremely anxious, excited and made hoarse sounds and talked of imaginary situations. There were several self inflicted wounds on the lips, tongue and arms; excessive saliva mixed with blood from the oral cavity. Three of the incisor teeth were broken as a result of biting hard objects. He was

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very aggressive and had to be restrained with a rope. A tranquillizer (Largactil 50mg iv) was given. No antirabies vaccine (ARV) or hyper immune globulin (HIG) was recommended and none was given. Subject No.1 was diagnosed as a clinical rabies case.

Subject No.2 was an adult male of about 40 years old. He had been bitten on the right wrist and thumb while restraining subject No.1, the index case, who was his son. The bites had penetrated intact skin causing bleeding.

No deliberate first aid like wound washing and applying antiseptic had been done. The bite victim was recommended for the 2-1-1 PET. He was immediately given 0.5 ml i.m. on two sites using a cell culture vaccine (Verorab Pasteur Merieux Lyon). The two were discharged that same day.

Two weeks later on 4/7/96, the investigators visited their home in Miseebe village, Buiera sub-county, Mityana county. The following were established:

- The index case had died on 19/6/96 in the evening, 24 hours after discharge from hospital.
- He had been bitten by a stray dog of unknown vaccination status on 7/5/96.
- He was taken to a private clinic in Mityana town 15kms away on the same day of the bite. The wounds were washed, dressed and antibiotic cover given.
- No antirabies vaccine or hyper immune sera was given nor recommended by the clinic.
- On 15/6/96, 5 weeks post-bite the patient started complaining of a sore throat and weakness. In the next two days mental confusion and other typical signs of rabies set in. On the third day, he was taken to Entebbe Grade “A” hospital on the advice of a relative who suspected rabies.
- The investigators were informed of many unrestrained, unowned (stray) dogs, jackals and foxes in the area which is heavily forested and bordered by Nakalama Tea Estate. A number of such dogs were seen moving freely within the village.
- One resident, a maternal uncle of the index case, revealed that in August 1995, his son had been bitten by a suspected rabid fox. Antirabies PET had been given to save his life. No medical form was produced to support this claim.
- The wounds of subject No.2 were healing well enough for him to carry on with his normal work.

4 Discussion.

Transmission of rabies to humans can be broadly classified as bite related and non-bite related. The latter is very rare and has been documented in the following cases:

(i) Corneal grafts from rabies infected donors.

<table>
<thead>
<tr>
<th>Year</th>
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<tr>
<td>1979</td>
<td>France</td>
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<td>36</td>
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<td>(Sureau et al. 1981)</td>
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<td>41</td>
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</tr>
<tr>
<td>1987</td>
<td>India</td>
<td>*2</td>
<td>62</td>
<td>M</td>
<td>(Gode and Bhide 1988)</td>
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<td></td>
<td></td>
<td></td>
<td>48</td>
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<td></td>
<td></td>
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<td>40</td>
<td>M</td>
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</table>

* Single donor source

(ii) Air borne spread whereby transmission of rabies occurred in two people in a cave in Texas, USA. Accidental exposure to aerosol among laboratory workers has also resulted in transmission (Afshar, 1979).

(iii) Ingestion has been reported in a woman who in early stages of rabies transmitted the disease to her breast feeding baby (Afshar, 1979).

(iv) Other non-bite routes have been reported to be coitus (Meyer 1957), licking of the vagina and licking of the anus (Baer et al. 1982). None of these has been conclusively proven.
Worldwide transmission of rabies is almost always bite related. Ninety percent or more are due to dog bites even in those areas where wildlife rabies is predominant (WHO, 1984). In Uganda of the 15 human deaths reported in 1996, 14 (93.3%) were due to dog bites and one (6.7%) to a fox bite (WHO, WSR 1996). Dog bites have therefore come to be closely associated with rabies causing great fear and anxiety in many communities.

Transmission of rabies through human-to-human bites and hence saliva exposure has never been virologically proven although it remains a theoretical possibility (Heimick et al. 1987). Infected human saliva had enough virus to cause experimental infection in dogs, rabbits and guinea pigs (Meyer, 1957).

Human bites associated with clinical rabies are rare. In Uganda of 11916 PET given between 1990 and 1996. Only 6 (0.05%) or about 1:2000 were a result of a rabid human being biting another person according to MOH, VPH Surveillance Reports. It has reported in the literature without conclusive proof that in the year 1600, Malphigi's mother died after her daughter's bite (Italy). In 1886, a man died after an atypical paralytic "rage" 4 weeks after the bite of a person with rabies (France) (Hemick et al., 1987).

Fekadu has recently reported two cases of human to human transmission in AddiS-Ababa, Ethiopia (Fekadu, 1997).

In the Mubende case, no laboratory diagnosis was done. However, after a careful review of the history, clinical presentation, epidemiological factors relating to the index case a rabies diagnosis was made. The clinically rabid index case had severely bitten and probably exposed his father to rabies which is almost 100% fatal, no chances could be taken but to recommend and give PET.

**5 CONCLUSION AND RECOMMENDATION.**

Cases of human to human bites associated with clinical rabies are very rare. Even when they occur there is no conclusive evidence yet that rabies transmission can occur.

This could be because, as observed by Meyer (1957) "The main reason human to human transmission has not often been published is doubtless that all persons in intimate contact with saliva of a rabid person are treated the minute the diagnosis is proved by laboratory test".

The investigators recommend that:

1. Since in most developing countries, Uganda inclusive, rabies diagnosis is based mainly on clinical grounds only, (WHO, WSR 1996) PET should begin once a clinical diagnosis of rabies is made in the biting individual (index case). This will avert the anxiety and the remote possibility that rabies transmission could have occurred.

2. Health workers should be able through careful history taking, to identify potential rabies cases early enough so that they start PET immediately.

3. If a health unit (Government or Private) does not have rabies PET, the unit should have knowledge where PET can be obtained and refer the victim accordingly.

4. Community education, whether by health or veterinary workers, should discourage belief in witchcraft with regard to rabies, since this can cause delay in getting proper medical care.

5. Persons involved in nursing and handling rabies patients should wear protective clothing (gloves, masks). Extra care should be taken to avoid bite injuries by using thick gloves, tranquilizers for the patient so as not to get exposed to rabies through aerosol or direct bites.

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2. Ministry of Health for facilitating the investigation.
6 REFERENCES.


