Contemporary Issue

GUIDELINES FOR AUTOPSY IN HIV POSITIVE CASES

Col JR BHARDWAJ*

ABSTRACT

Autopsy on a patient who had died as a consequence of acquired immune deficiency syndrome (AIDS) can be of great value in understanding the disease process. A potential risk to the prosector for acquiring the HIV exists, but if adequate preventive measures are undertaken, the risk is negligible. Indeed there is no documented evidence of a pathologist or an autopsy room attendant acquiring HIV infection while performing autopsy on a patient with AIDS. The procedures to be followed in the autopsy of the patient with AIDS are discussed.

MJAFI 1994; 50 : 134-136

KEY WORDS : Acquired immune deficiency syndrome (AIDS); Autopsy in HIV Positive, Autopsy; Hospital acquired infections

Introduction

The greatest risk while performing an autopsy on cases of acquired immune deficiency syndrome (AIDS) is not the case itself, but the pathologists' lack of regard for potential risk and concern for a safe technique [1]. There is no evidence to confirm that HIV is transmitted by air [2]. The HIV is transmitted by blood or blood products, sexual contact and perinatally from an infected mother to the neonate. Transmission by casual contact such as hand shaking or face to face conversion does not occur [3]. Care, however, should be exercised when handling blood, mucosal surfaces or tissues of all patients as they may be unsuspected of being infected by the HIV or they may be in the window period and so serologically HIV negative. Furthermore cases may also harbour many potentially transmissible pathogens such as hepatitis B virus, *Mycobacterium tuberculosis*, herpes simplex virus, cryptosporidia and other respiratory pathogens. A point to be noted is that, other respiratory pathogens as Epstein-Barr virus, cytomegalovirus, toxoplasma and fungi do not have nosocomial transmission [3].

THE AUTOPSY ROOM

The autopsy room should be clean, well ventillated and well lit. The bench tops should be impervious to water and resistant to disinfectants, acids, alkalis, organic solvents and moderate heat. Entry to the work area must be restricted to authorised staff only. There should be a minimum of traffic in and out. No other autopsy should be simultaneously carried out [1,4].

PRECAUTIONS DURING THE AUTOPSY

Certain procedures are likely to generate aerosols and splashing of blood. Hence, the eyes, nose and mouth should be protected with a face shield or mask and protective eyewear [1,4]. Regular glasses are not adequate protection and at a minimum, wrap around goggles should be employed [1].

There must be total body barrier protection with water repellant protective clothing. Therefore, in addition to the face shield the prosector and his assistants must wear pyjama, shirt, gown, cap, plastic aprons which also cover the hands, double pair of good quality gloves and shoe covers. Before putting on the gloves, strips of band aid should be

* Prof & Head, Dept of Pathology, AFMC, Pune-411 040.

applied on all fingers to prevent injury. Face masks if used should be double [1,4]. It is of prime importance to ensure that a person in the autopsy room does not have any external injury. If the prosector's skin surface becomes contaminated, it must be promptly cleaned. Gloves should be promptly changed if seepage or interruption in the integrity of the glove is seen [1].

While performing the autopsy, extreme precaution must be taken to avoid needlestick injuries [5]. Sharp instruments should be used so that cutting is smooth and clean. The ribs should be cut through the cartilagenous portion so that no jagged edges remain. This prevents injury to the hands [1,4]. Never put a hand directly on tissue when you are cutting with the other hand. It is likely that one may accidently injure oneself [4].

COLLECTION OF TISSUE

All tissue retreived must be placed in 10% formal saline for fixation and disinfection unless it is to be sent for culture. Formalin does not penetrate more than 5 mm in 24 hours, therefore, the tissue slices taken should not be more than 2 cm thick. They should be left for adequate time in the fixative before being handled again. Bloody formaldehyde is not an effective fixative and must be changed [1]. The drum containing the tissue in formaldehyde must be labelled as "AIDS, HANDLE WITH CARE".

Tissue samples for culture studies must be collected in sterile tubes which are then kept in puncture resistant plastic containers before despatch to the laboratory. The containers must be similarly labelled for biohazardous material. When the organs have served their purpose they should be disposed off by incineration after 30 minutes exposure to 0.5% hypochlorite solution.

DISPOSAL OF THE DEAD BODY

The closed body should be carefully washed with detergent solution and then with 0.5% hypochlorite solution before being finally rinsed with water. The body should then be placed in a double bag of heavy plastic which should be secured and tied properly at both ends. The body is labelled as "HIV-RISK" and the relatives must be given strict instructions not to disturb the plastic-ware before cremation. If there is a known contagious organism the bag should be specifically labelled accordingly.

DISINFECTION OF AUTOPSY ROOM/INSTRUMENTS

Work surfaces should be disinfected with 0.5% hypochlorite solution once the procedures are completed. A minimum period of contact with the disinfectant is 30 mins [6]. The instruments must be carefully washed with water and later wiped with 0.5% hypochlorite solution. Aluminium and stainless steel instruments should be decontaminated in 2% glutaraldehyde, as sodium hypochlorite may damage them. The instruments should be subsequently autoclaved and kept for autopsy on infectious cases only [4]. Hypochlorite tends to loose its strength with time and hence must be freshly prepared. Heavily soiled equipment can be disinfected with a 1% hypochlorite solution.

DISPOSAL OF LINEN

After the autopsy, the prosectors must wash hands with soap and water - gowns, shoe cover, gloves, caps and masks must be discarded in a plastic bag. The bag is tied properly lebelled as "HIV-RISK" and sent for incineration [4].

DISINFECTANTS

Many disinfectants inactivate the HIV (Table-1). In practise, however, the chemical disinfectants are not reliable because they may be inactivated by blood or other organic matter. Furthermore, they require careful preparation and tend to lose their effectiveness with passage of time [7]. Immersion for 30 minutes in the recommended disinfectant destroys vegetative bacteria, fungi and viruses. Spores, however, survive and may require upto 10 hrs immersion [7]. The disinfectant preferred is hypochlorite as it is cheap and very effective.

TABLE 1
Recommended disinfectants for use against HIV

Sodium hypochlorite	0.5% (available chlorine)
Glutaraldehyde	2%
Ethanol	70%
Hydrogen peroxide	6%
Isopropyl alcohol	70%
Formaldehyde	4%
Polyvidone iodine	2.5%
Chloramine	2%
A minimum contact time of 30 minutes is recommended	

Note:-

1. As a general purpose disinfectant for wiping surface and for decontamination, use of sodium hypochlorite is recommended. However household bleach that contains 5.25% (525,000 ppm) of available chlorine may also be used. The effective range varies from 0.5% (50,000 ppm) to 1% [i.e 1-2 teaspoonful/litre of water].
2. The time for disinfection must be enhanced if articles are heavity contaminated.
3. Hypochlorite solutions must be prepared fresh each time.
4. Disinfectant after use should be discarded.

The most important risk factor to the prosector and his co-workers is the lack of regard for the potential hazards inherent in performing an autopsy. It is essential to anticipate autopsy on patients who are HIV positive and therefore a laboratory should equip itself to tackle the problem at all times. These guideleines should be followed in all cases as there have been many incidents where a pathologist has been called upon to perform an autopsy on a body with an unsuspected HIV infection [8]. If adequate precautions are undertaken during performance of autopsy on patients who have died of AIDS, the risk of contracting the infection is negligible. Adequate precautions to prevent needlestick injuries, splashing of blood and contaminated fluids have to be observed. After the prosection, the dead body, linen and instruments have to be disposed off according to the laid down protocol.

The observation of these directives makes an utopsy on AIDS a safe procedure. All pathologists must aquaint themselves with these guidelines and equip themelevs accordingly to tackle such an eventuality as and when it arises.

CHECK LIST FOR AUTOPSY

1. There should be no open wounds on the prosector or member of his team.
2. Proper personal hygiene before, during and after the autopsy.
3. Adequate protective clothing as :
   (a) Caps (b) Double face mask
   (c) Goggles (d) Double gloves
   (e) Pyjama (f) Shirt
   (g) Plastic apron covering hand and feet
   (h) Band aid on finger tips
   (j) Shoe covers of thick plastic
4. Safe collection/disposal of tissue
5. Correct disinfection of instruments and working area.
6. Safe disposal of the dead body.

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