

Editorial

Role of Forensic Odontologists during Pandemics

Infectious diseases such as hepatitis C, HIV infection, Middle East respiratory syndrome and hemorrhagic fever viruses such as Ebola, meningitis, SARS-CoV-2, and now COVID-19 always pose biological hazards to forensic pathologists and odontologists in identifying unidentified human remains with unknown medical history. Novel coronavirus infection (COVID-19) has reached 185 countries, causing increased morbidity and mortality. Forensic pathologists and odontologists may perform an identification autopsy in confirmed or suspected SARS-CoV-2, COVID-19-positive deaths due to increased crime and suicidal rates. Universal precautions and recommendations need to be followed to minimize the infectious risk. A priority for human rights of the dead should be given during the practice of human identification.

IMPACT OF PANDEMICS ON SUICIDAL RATES

Epidemics and pandemics have produced a profound psychological and social impact on humans. This psychosocial consecution of the pandemic will remain for months and years together. Pandemics cause distress, anxiety, fear of contagion, depression, and insomnia in the general population and among health-care professionals. Social isolation, anxiety, fear of contagion, uncertainty, chronic stress due to work-from-home and unsecured job, and economic difficulties due to loss of job may lead to depressive, anxiety, substance use, and other psychiatric disorders in vulnerable populations including individuals with preexisting psychiatric disorders and people who reside in high-prevalence areas. Stress-related psychiatric conditions including mood and substance use disorders are always associated with suicidal behavior. Pandemic crisis may increase the suicidal rates during and after the pandemic. Suicidal behavior is likely to be present for a long time and peaks later than that of in the actual pandemic period. A decrease in social integration and interaction during the pandemic and the fears caused by the pandemic likely increase suicidal rates. The impact of economic problems related to the pandemic crisis on mental health is severe.

IMPACT OF PANDEMICS ON CRIME RATES

The coronavirus outbreak was first identified in Wuhan, Hubei, China, in December 2019 and was recognized as a pandemic by the World Health Organization on March 11, 2020. The cases of COVID-19 are increasing exponentially around the globe. Various measures such as social distancing, complete lockdown, and curfew are seen in most of the countries globally. India, as a nation, got an opportunity to learn from their experiences and initiated a complete lockdown in the whole country until the end of April. The economies around the world got hit by such lockdowns due to which there is an evident economic recession. The unemployment rate has increased and people will be left with less disposable incomes, paving the way for an economic crisis. With the experience of major crisis in the past, we have noticed that the crime rates

in and post such situations tend to increase. The pandemic COVID-19 has impacted crime and illicit economies such as organized crime, terrorism, street crime, online crime, illegal markets, smuggling, human and wildlife trafficking, slavery, robberies, and burglaries. With more people spending more time online, cyber crime has increased. As the practice of work from home is increasing, more and more corporate data are being accessed from homes that may not have the same level of security notice, warning people of fraudsters imitating original employees. Hate crimes and domestic violence increasing during the pandemic lead to murder and suicidal rates.

AUTOPSY BY FORENSIC ODONTOLOGISTS AND PATHOLOGISTS

Identifying the unidentified deaths due to crimes and suicide during the epidemics or pandemics by autopsy may cause a risk among forensic professionals due to unidentified medical problems. Since salivary glands act as the reservoir of COVID-19, forensic odontologists are at risk in performing dental autopsy. It is known that SARS-CoV-2, COVID-19, persists on surfaces for days and persists in the nasal cavity for 3 days after death and due to this reason, it has been reported that there is a possibility that the virus persists on the bodies of the deceased, too. As a consequence, unidentified human remains must be handled safely during transportation, storage, autopsy, and burial/cremation. It must be stressed that autopsy of an unidentified deceased body whose death is due to COVID-19 should be performed only for forensic reasons or identification purposes. The identification process relies not only on dental postmortem data but also on DNA collections, which will be collected by the forensic pathologist. These two primary identifiers, DNA and dental, should be considered when performing an identification autopsy, but when a dental autopsy is too risky and/or too labor intensive, DNA can be considered a stronger substitute for the identification.

DENTAL AUTOPSY RECOMMENDATIONS

Forensic odontologists should always discuss the case with the forensic pathologist in charge before starting the dental autopsy. The infectious nature of case should be determined before any postmortem. Dental autopsy data collection should start from collecting available history given by the police on the circumstances of the recovery of the body. Also nasopharyngeal swab and oropharyngeal swab for SARS-CoV-2, COVID-19 testing should be collected by the medical examiner as per the Centers for Disease Control and Prevention 2020 guidelines.

It is well known that infection can spread either by aerosol or directly through cuts and puncture wounds. When such cases are unsuspected or undiagnosed before death, it can be hazardous to the forensic pathologists, odontologists, technicians, and other personnel present in the mortuary. The most important aspect of protection for dental

autopsy personnel is the correct use of personal protective equipment (PPE) and training prior to conducting any autopsies and dental autopsies.

The following are the universal precautions and PPE recommended:

1. Wear surgical uniform
2. Over the scrubs, wear a long-sleeved waterproof or fluid-resistant gown to protect the chest, arms, and legs
3. Wear a disposable apron covering the chest and legs over the waterproof gown
4. Wear double nonsterile gloves (preferably nitrile gloves); the gloves must extend to cover the wrists; the second nitrile gloves can be changed frequently, if needed
5. Wear heavy-duty gloves over the first nitrile gloves (if postmortem dental data collection involves cuts)
6. Consider using a whole-body suit
7. Use goggles and a plastic face shield or a face mask to protect the face, eyes, nose, and mouth
8. Class 3 or Class 2 filtering face masks (certified disposable N-95 respirator or higher, FFP2, FFP3) should be used. Surgical masks do not provide adequate protection but can be worn over an FFP2 mask, but FFP3 masks are preferred
9. Wear rubber boots and waterproof shoe protectors
10. Wear surgical cap.

As per guidelines issued by the Indian Ministry of Health and Family Welfare, 2020, reusable clothing can be removed from the autopsy suite and should be laundered according to routine procedures. Besides washing and cleaning other dental autopsy instruments, all the surfaces and transport trolleys should be properly disinfected with soap and water, followed by disinfection with 0.5%–1% sodium hypochlorite solution for at least 20 min by autoclaving of instruments. Other common effective hospital disinfectants are ethanol (62%–71%) or hydrogen peroxide (0.5%). Even though their protective film is removed, cameras, telephones, laptops, and portable X-ray devices should be treated as if they are contaminated and should be handled with gloves. All these items must be wiped with appropriate disinfectant.

CONCLUSION

In the current spread of COVID-19, all autopsy procedures including dental must be assume that human remains are potentially infected. The risks should not prevent us from applying best practice in human identification through the collection of primary identifiers, such as fingerprint, DNA and dental data. To balance safety and the respect of the human rights of the dead, strict infection and safety protocols must be applied through planning, training, preparation, and experience of all personnel entering the autopsy suite. Forensic odontologists and dental hygienists involved in autopsies of infectious human remains should always be well trained in infection prevention control practices and management of the dead in challenging circumstances.

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