Acute Flaccid Paralysis

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Introduction

Poliomyelitis is an acute viral infection caused by RNA virus. It is primarily an infection of the human alimentary tract but the virus may infect the central nervous system in a very small percentage (1%) of cases resulting in varying degrees of paralysis, and possibly death [1]. The extensive use of polio vaccines since 1954 has virtually eliminated the disease in developed countries. The South East Asia Region (SEAR) contains the largest remaining reservoir of wild polio virus in the world. The incidence of reported poliomyelitis cases has declined by 90% [2].

In this era of eradication of polio, even a single case is treated as an outbreak and preventive measures should be initiated, usually within 48 hours of notification of the case [3]. One of the most important and major objectives of Nation wide Polio Eradication programme is to ensure timely and complete reporting of cases of acute flaccid paralysis (AFP) and to collect stool specimen within 14 days and conduct outbreak response immunisation (ORI) as early as possible. Here we report one case of AFP which was diagnosed, notified, investigated and managed within 8 hours and stool specimen collected within 48 hours of reporting of the case. The case was epidemiologically investigated as per the Ministry of Health and Family Welfare and WHO guidelines and ORI was conducted in the community next day. The response in this case not only shows coordinated effort of curative and preventive medicine but how health teams of civil and army should function in cohesion to curb any public health problem.

Case Report

3½ year old son of a serving soldier residing at family quarters of 550 acre area in Ferozepur cantt reported on 28th February 2002 with acute onset of fever and paresis left lower leg for last 7 days. No history of trauma or sensory loss was present. On examination power of grade III/V was present in left lower leg with marked hypotonia. Keeping a high suspicion of poliomyelitis, a diagnosis of AFP was made. On epidemiological investigation it was revealed that child had not taken any routine immunization in first 1½ years, whereas he had taken few irregular doses in the Pulse Polio Programme for last two years. Last dose was taken on 21

January 2002. No travel history was present for last one month and the child was not going to school.

The AFP case was notified within 6 hours to Civil Surgeon, District Immunisation Officer, Surveillance Medical Officer and Armed Forces Central Epidemiological Investigation Cell through proper channel. A standard AFP case investigation form was completed and 2 samples of voided stools were collected 24 hours apart in clean dry screw capped container. The specimen was collected, labelled and transported in reverse cold chain by courier to the Central Research Institute (CRI), Kasauli (a WHO accredited laboratory for isolation of wild polio virus) along with standard lab request form for detection of wild polio virus. An ORI was planned and adequate vaccine was procured, based on the estimated target population i.e. about 500 children less than 5 years in the locality. Cold chain material, ice packs, vaccine carriers were prepared. Adequate supply of line listing forms and case investigation forms was ensured. The locality was identified and houses were numbered. A spot map was prepared to mark the location of case and areas targeted for immunization. ORI was organised on next Sunday to ensure presence of maximum children in their houses. All 0-59 month old children were given one dose of OPV irrespective of their previous immunization status while going house to house.

Six teams were made for all 620 houses in the locality. All the families of the locality i.e. 550 acre area were informed a day in advance about such a programme and prior announcement and propaganda was made. From 0900 hours to 1600 hours 420 children were immunized. Absentees were identified and immunized next day. All children less than 5 years admitted in paediatric ward were immunized and the case was also immunized after collection of stool specimen.

The travel history of the child was taken to suggest additional places of stay where ORI ought to be conducted. The child had not moved out of station for last 40 days and child was not going to school. In the community where the AFP case lived, a house-to-house active case search was organised along with ORI to find more AFP cases if they had occurred. The case definition used during active case search was, flaccid paralysis in a child between 0-15 years of age with onset within last 60 days." No such cases were recovered from the community.

The time and place for 60 day follow up to determine if residual paralysis was present was established and communicated verbally and in writing to the family. The case

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was managed by complete bed rest, warm water fomentation, symptomatic treatment for fever and only passive movements of the affected limb were done. A clear instruction of no massage or IM injection was given.

The CRI laboratory report for wild polio virus was negative and patient improved significantly in next 1½ months. There was no residual neurological sequel after 60 days of onset. On basis of lab result and physical examination after 60 days the case was discarded from AFP surveillance and termed as, “Non Polio”.

Discussion

Poliomyelitis is most often recognised by the acute onset of flaccid paralysis. The paralysis of poliomyelitis is characteristically asymmetric with fever present at the onset. The legs are affected more often than the arms [4]. AFP surveillance is conducted to identify all remaining infected areas, monitor progress towards eradication and target supplementary immunization appropriately. According to WHO, 2 key indicators evaluate AFP surveillance : the sensitivity of reporting (target being non polio AFP rate of at least 1 case per 1,00,000 children aged less than 15 years), and the completeness of specimen collection (target being 2 adequate stool specimens from at least 80% of all AFP cases) [1].

The most frequent cause of AFP that must be distinguished from Poliomyelitis is Guillain-Barre Syndrome (GBS). The paralysis of GBS is typically symmetrical, associated with sensory changes. Fever, nausea, headache, vomiting and pleocytosis are usually absent in GBS [4]. Other important causes of AFP include transverse myelitis, traumatic neuritis, infectious and toxic neuropathies etc. that were all ruled out in this case.

Non polio enteroviruses like *Coxsackie A*, *Coxsackie B*, *ECHO* or *Enterovirus types 70* and *71* have also been temporally associated with AFP and most of these

cases show a course of improvement with complete recovery [5]. Hence, final diagnosis of “Non Polio” due to other enteroviruses was made. Since healthy children excrete non polio enteroviruses, the isolation of non polio enteroviruses from the case may not be proof of causal relationship and was not done due to lack of facilities.

A good network of reporting units comprise the basic framework of AFP surveillance system. It is recommended that all Military Hospitals should be made reporting units for AFP surveillance. A clinico-epidemiological cell should be established at station level comprising paediatrician, pathologist, epidemiologist and public health specialists. The cell would be responsible for initial investigation and confirmation of diagnosis of reported cases, regular reporting of AFP cases, conducting ORI and educational campaigns. All peripheral and central Medical Inspection Rooms must be listed and established as reporting sites. Regimental Medical Officers /MOs should be adequately trained in initial identification and prompt reporting of AFP cases. A well developed information system is an important aspect of a successful polio eradication programme.

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“Last week a grain of sand got into my wife’s eye, and she had to go to the doctor,”
the married man told his friend “it cost me 150/-”
“That’s nothing” his friend replied
“Last week a cocktail dress got into my wife’s eye, and it cost me 15,000/-”