HIV Paediatric case 5 – Martha

This is Martha; she is 13 months old. She has come into hospital with an abscess in her right arm pit or axilla.

STOP POINT

WHAT DOES THIS LOOK LIKE?

BCG-OSIS. This is an abscess after a BCG. Although it is more common to get an abscess at the point were the BCG was done – it can also be around the lymph node in the armpit.

HISTORY FROM BIRTH:

Martha is HIV positive, but it took a long time for this to be diagnosed.
Martha's mother tested HIV negative while she was pregnant. So Martha did not have any treatment to prevent mother to child transmission and was not given nevirapine syrup. Nor was she noted in her health records as an exposed baby at birth.

In Martha's battered health passport there is a good record of her first year – in part because she's so often been sick. Her height and weight were measured at regular intervals, but the growth chart was only filled out for the first four months. It shows very good growth for three months where she reaches a weight of 8 kilos. And then the entries stop. This is what her first nine months of growth would have looked like if the chart had been filled out each time Martha was weighed.....

Martha's illness started soon after she began to lose weight with oral sores and a cough. At six months, after a week on antibiotics for a cough and fever, she developed pneumonia and respiratory distress. Semi-conscious, she was transferred as an emergency to the central hospital. At this point she weighed 6.7 kilos. She was admitted for ten days and was reviewed by the ART clinic at discharge. At this point Martha's mother tested HIV reactive. A DNA-PCR was taken from Martha. The result usually takes a month to six weeks to come back.

STOP POINT

When Martha 7 months old - Mother tested HIV reactive, and was initiated on ART: (TDF/3TC/EFV) + CPT.

WHAT WAS MARTHA'S STATUS AFTER HER MOTHER TESTED HIV REACTIVE?
HOW COULD MARTHA BE HIV POSITIVE IF HER MOTHER TESTED NEGATIVE DURING PREGNANCY?
WOULD YOU HAVE INITIATED ART FOR MARTHA PENDING THE HIV DNA-PCR RESULT?
WHAT WOULD YOU DO IF NO HIV DNA-PCR WAS AVAILABLE?
WHAT ELSE NEEDED TO BE DONE?

1) Martha was exposed.

2) This is very possible. There is a lag time of up to three months between infection and a rapid test showing positive...The test only shows the anti-bodies produced against the virus. So it is very possible for the mother to become infected during pregnancy and test negative with the rapid test. In this scenario the risk of infection is very high. Recently infected people have a very high viral load before their anti-bodies kick in and are themselves very infectious. The child also will not have PMTCT, nor NVP syrup after birth, nor will they have been identified as an exposed baby.

3) Would you initiate ART while waiting for the DNA-PCR result? This is recommended and has been a recent guideline change in a number of countries. Remember that most infected babies will die in the first two years. So the risk of not starting treatment on a baby who is infected is much greater than the risk of mistakenly starting treatment on an uninfected baby. If the DNA-PCR result turns out to be negative then treatment can be stopped. At seven months, a rapid test on Martha would also give a strong indication of whether she is infected or not. Lack of laboratory facilities to do advanced tests, should not be a reason for not initiating or significantly delaying ART initiation.

4) If an HIV-PCR is not available, a rapid test should be done. Babies who test HIV reactive and are also showing signs of advanced HIV disease should be started on treatment. (In Malawi guidelines this is known as PSHD Presumed Severe HIV Disease). This is the case with Martha.

DEFINITION OF PSHD IN MALAWI GUIDELINES:
- Infant below 12 months of age + Positive HIV antibody (rapid) test

Plus one or several conditions in the following list:
- Pneumocystis pneumonia
- Candidiasis of oesophagus, trachea, bronchi or lungs
- Cryptococcal meningitis
- Severe unexplained wasting / malnutrition not responding to treatment
- (weight-for-height/-age below 70% or MUAC below 11cm or oedema)
- Toxoplasmosis of the brain (from age 1 month)
-

Or a combination of at least two of the following:

- Oral Trush
- Severe Sepsis
- Severe Pneumonia

5) What else needs to be done?

- Other members of the family need to be tested and followed up.
- The case highlights the importance of filling out the growth chart. Close monitoring of growth is an additional tool which can be used in children, which is not available in adults. Research has shown that failure to thrive is an excellent predictor of underlying health problems and can be used very well to monitor children on ART

FATHER TESTED HIV POSITIVE A MONTH LATER. PUT ON CPT AWAITING CD4 RESULT. TWO OTHER CHILDREN (AGED 2 1/2 AND 8) TESTED HIV NEGATIVE.

Shortly after Martha's father also tested reactive. He started co-trimoxazole and had a CD4 count done to see if he needed to start ART. Martha's siblings tested HIV negative.
Three weeks later, while Martha was waiting for the DNA-PCR result, she was taken back as an emergency to the hospital with very severe pneumonia and oral candidiasis. On admission the clinician noted Martha was waiting for a DNA-PCR result, wrote down Presumed Severe HIV Disease, and suggested she was eligible to start ART.

STOP POINT

While waiting for the DNA-PCR result Martha has been admitted with severe pneumonia and Oral candida.

DID THE CLINICIAN HAVE SUFFICIENT INFORMATION TO DIAGNOSE PSHD?
SHOULD MARTHA HAVE BEEN STARTED ON ART?

1) PSHD diagnosis would normally include a positive rapid test, but this was not done. The rapid test should have been done, because, if positive, Martha would have been eligible to start ART straight away.

2) Yes – with a rapid test there was sufficient evidence to start her. The benefits of starting ART would far outweigh the risks of waiting for the DNA/PCR result.

Martha was not started on ART. Instead she spent 8 days in hospital before being discharged with a follow up date made for two weeks later. By now she'd had a cough and oral sores for more than five months.... Two weeks later Martha's DNA-PCR result came back positive. She was finally initiated on ART.

STOP POINT

HISTORY:

- **Mother tested HIV during pregnancy**
- **Martha has repeated illness in first six months.**
- **Oral sores noted five times**
- **Two admissions for pneumonia**
- **Aged 8 months: Tested HIV positive with DNA-PCR.**
- **Martha started on ART**

WHICH REGIMEN SHOULD MARTHA HAVE STARTED?
IS THE DNA-PCR RESULT DEFINITIVE?

- Infant regimen which will vary from country to country.
- Yes the DNA-PCR is definitive....but remember there can always be errors in the laboratory.

In the months following initiation on ART, Martha continued to be acutely sick. She was again admitted to the central hospital with severe malnutrition and oedema and put onto a feeding program. She had another bout of severe pneumonia. Her weight started to increase, but only slowly. Her upper arm measurement was now 11 centimeters.

STOP POINT

IS THIS THE WEIGHT INCREASE YOU WOULD EXPECT IN THE MONTHS FOLLOWING ART INITIATION?

No this is much less weight gain than you would normally expect to see in a malnourished child who has just started ART. This is suggests that there might be something else happening. TB would be a suspect.

PHYSICAL EXAMINATION
Four Months after starting ART...Now 13 months old.
Admitted with abscess on her right axilla

4 days ago Martha was brought to the clinic with an abscess and swelling on her right axial/armpit. Her mother says this started not long after starting ART, but has now got much worse. The swelling is filled with puss and is painful. This is the arm where she was given a BCG after birth.

STOP POINT

WHAT ELSE DO YOU NEED TO CHECK FOR IN A PHYSICAL EXAMINATION?
WHAT QUESTIONS DO YOU NEED TO ASK?

Any other signs of opportunistic infections. Particularly TB and Candida. Malnutrition.
Chest X-ray to rule out TB.
CD4. No CD-4 was done on initiation of ART. A baseline will probably not be accurate now. Doing a CD4 baseline is very useful in children. This is because if they are non-adherent or failing on treatment their CD4 count will quickly drop back to the baseline level of before they initiated ART. The CD4, where available, can therefore be a good alternative to viral load monitoring.

She has no fever, night sweats or respiratory distress. But she hav swollen glands. And her chest sounds noisy and she has a cough. She also has white oral sores. And she looks thin....
The nutritional assessment showed Martha to be gaining weight slowly, but still severely malnourished. Most worrying, her upper arm measurement is now 10.5 centimeters, less than two months ago when it was 11 centimeters.
This is her x-ray. She is too young to do a sputum test.

STOP POINT

HISTORY:

- **Initiated ART six months ago**
- **Abscess on right axilla/armpit**
- **White oral sores**
- **Enlarged lymph nodes**
- **Cough and noisy chest**
- **CD4 – 1061 (No baseline CD4 at ART initiation)**
- **Age: 13 months; Weight 5.3ll kg; Height: 68.4cm MUAC: 10.5cm**

WHAT IS THE DIFFERENCE BETWEEN BCG-OSIS AND TB?
WOULD YOU DO FURTHER INVESTIGATIONS FOR TB OR START HER ON TB TREATMENT?

1) The swelling on her arm is probably Lymphadenopathy of right axilla secondary to BCG or BCG-osis. This is not the same as TB. It is a reaction to the BCG vaccination – or an infection caused by inability of the defensive system to deal with the artificially modified TB strain used in the vaccine. BCG-osis usually starts with an abscess at the site where the vaccination was given, rather than the armpit.

2) Martha's symptoms are consistent with TB, particularly the cough and the lack of weight gain during the first months on ART. She has two of the pointers to TB.

Martha is started on TB treatment. She will stay in hospital for the first few weeks to monitor this and also monitor progress of the abscess in her arm-pit. The oral thrush is treated. An x-ray is also made of her mother but this turns out to be non-suspective for TB.....

TWO WEEKS LATER...

After two weeks in hospital, Martha appears to be tolerating the TB treatment well. The swelling in her armpit still looks extensive. However the abscess is no longer hard and can be moved. It is judged to be healing. As she is improving well, Martha and her mother are discharged from the hospital.

STOP POINT

WHICH FEEDING ADVICE WOULD YOU GIVE THE MOTHER?
A FOLLOW UP APPOINTMENT IS MADE FOR A MONTH'S TIME. WHAT WOULD YOU CHECK THEN?

1) Mixed feeding: continue breast feeding until age 24 months + other food. Then wean.
2) Weight, height, MUAC (Nutrition assessment)
Adherence and side effects to ART and TB treatment
Swelling in axilla
Oral Thrush
Cough and other TB signs. Lymph nodes.

OUTCOME:
Martha's mother did not come to the follow up appointment.