SUMMARY

AND

CONCLUSION
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Literatures reviewed

The literatures pertaining to the incidence of Brucellosis in man and animals, serum plate agglutination test, tube agglutination test, complement fixation test, indirect bacterial haemagglutination test, Coombs' test, Rose Bengal test, gel diffusion test, Milk Ring test, isolation of Brucella and abortion in women were critically reviewed.

Results

In the present study, various serological techniques were standardised and used for ascertaining antibody titres for Brucellosis in man and animals. In addition, attempts were made to isolate Brucella organism.

1. Serum plate agglutination test

Serum samples from 605 women with foetal loss, 357 goats, and 44 sheep were tested by using Brucella coloured antigen, it was observed that 11 samples from foetal loss cases, 16 samples from goats and none from sheep gave agglutination which was well defined. This test is, therefore, considered as rapid test for the diagnosis of Brucellosis.
2. Tube agglutination test

Serum samples when tested by tube agglutination test by using plain antigen, it was found that sera of 140 human beings out of 1645, 5 sheep out of 44, 33 goats out of 357 gave titres of 30 I.U./ml. and above.

3. Incidence of Brucellosis in man and animals

The percentage of incidence of Brucellosis in Gujarat State among 4 groups of patients, (Group I, febrile cases; Group II, syphilitic cases; Group III, persons exposed to Brucellosis; Group IV, foetal loss cases), was 8.51%. Among animals, the percentage of incidence of this infection was 11.36 in sheep, little higher than goats; in case of buffaloes and cows, it was more or less similar.

Thus, from the same sera tested by serum plate agglutination test, more positive cases could be detected by the tube agglutination test. This test, therefore, is the test of choice of detecting serologically cases of Brucella infection, during the survey work.
4. The antiglobulin (Coombs') test in Brucellosis

Coombs' test could detect positive cases, thereby eliminating the fallacy of incomplete antibodies.

5. Rose Bengal test

Out of 305 women with foetal loss, 50 were positive for Brucellosis by Rose Bengal test, similar to tube agglutination test. Rose Bengal test is a very rapid test compared to the tube agglutination test.

6. Complement fixation test

Fifty six sera from foetal loss cases with agglutinin titre of 40 I.ü./ml. showed complement fixing titres ranging from 1:10 to 1:160. The complement fixation test was found to be more cumbersome and time consuming and hence it could not be considered suitable for routine survey work.

7. Indirect bacterial haemagglutination test

The same above sera when tested by the indirect bacterial haemagglutination test revealed haemagglutinin ranging from 1:10 to 1:30. It can, therefore, be adopted as a supplementary test to confirm the infection.
8. Gel diffusion test

Twenty eight sera of 30 I.U./ml. agglutinin titre from foetal loss cases gave strong single line of precipitation; but 9 gave strong double line at 160 I.U./ml.

9. Gel precipitation inhibition test

All sera which gave line of precipitation were tested for gel precipitation inhibition. There was inhibition of line of precipitation in all these sera. This test was useful to find out the specificity of the infection.

10. Milk Ring test

Milk samples of buffaloes collected from 425 cans and those of cows collected from 175 cans received from different villages of Gujarat State were subjected to Milk Ring Test. MR reaction was noted in 31.76 percent milk samples collected from buffaloes and 31.42 percent milk samples collected from cows.

11. C-reactive protein determination

Out of 52 foetal loss cases with agglutinin, 16 were weakly positive and 19 were positive for C-reactive protein.
12. Cultural test

Blood, placenta and urine from women with foetal loss were cultured for the isolation of the micro-organisms, but Brucella organism was not isolated from any of the samples.

Brucella organism was isolated only from the milk sample of buffaloes. The culture was typed by the conventional method as Brucella abortus biotype 1.

13. Brucellosis in women with abortion (Serological evidence)

Fifty two (6.46%) out of 805 samples from foetal loss cases were serologically positive for Brucellosis in Gujarat State.

CONCLUSION

Gujarat is one of the important agricultural, milk producing States of India. Hence, the study on the incidence of this infection was of great necessity. In these investigations, there was evidence of Brucellosis in human population; besides, Brucella organism could not be isolated from all milk samples of buffaloes and cows although many samples were positive for MR test, except one milk sample from a can containing
milk from 10-20 buffaloes. This Brucella organism isolated might have been excreted by one or twenty buffaloes through their milk secretion, and it was clear that the infected animals, as indicated by MR test, did not continuously excrete Brucella organism in their milk. However, it was interesting to note that the human population might have acquired the infection through direct contact with animals or by consuming infected raw milk. Therefore, it is necessary to avoid the contact with animals, to drink pasteurised or boiled milk, as well as, to eat milk products prepared from pasteurised milk.

Animal Husbandary is fast developing in Gujarat State under "Operation Flood" project, as a result of which there is possibility of the spread of infection among animals - thus to human population.

The present finding of Brucellosis in women with foetal loss can be added to the single serological report, in India, by Randhawa et al (1974).

In view of the findings, it was concluded that the tube agglutination test was found most suitable in detecting the agglutinin titres and equally efficacious as Rose Bengal Test which is a rapid plate test.
Complement fixation, gel diffusion, Coombs' and indirect bacterial haemagglutination tests can, possibly, be used for confirmation of the infection.