Results

RESULTS

Out 100 cases studied we found that :-
34 cases of pure candidal infection (34%) , 40 cases of pure bacterial infection (40 %) and 26 cases of mixed bacterial and fungal infection (26 %).

Of theses 100 cases studied 57 cases were suffering from gastroenterites (57 %) and 43 cases (43 %) were suffering from malnutrition.

Table I shows that in the cases of gastro-enteritis associoted with napkin dermatitis we found that the aetiology of dermatitis was :

- Pure bacterial infection in 38 cases (66.66 %).
- Pure candida infection in 5 cases (8.77 %).
- Mixed infection in 14 cases (24.56%).

In the cases suffering from malnutrition associated with napkin dermatitis we found that the aetiology of dermatitis was :

- pure bacterial infection in 3 cases (6.976 %).
- Pure candidal infection in 29 cases (67.441 %).
- Mixed infection in 11 cases (25.581%).

Table (1) : Clinical conditions associated with napkin dermatitis and the type of organisms isolated.

Clinical cases associated with napkin dermatitis	number of cases	Candida pure		bacteria pure		Mixed	
		No	%	No	%	No	%
gastro-entritis	57	5	1.77	38	66.6	14	24.56
Malnut.	43	29	67.4	3	6.97	11	25.58
Total	100	34	34	41	41	25	25
Control	25	1	4	1	4	-	-

Distribution of the different strains of bacteria isolated from cases of napkin dermatitis in cases of pure bacterial infection.

Clinical cases associated W n.dermatis	Staph.	Strept.	E.coli	Klebs.	Pseudon.
gastro	19	9	5	4	3
Malnutrition	1	-	-	-	-
Total	20	9	5	4	3
%	48.78%	21.95%	12.19%	9.75%	7.31%

Table No. "2" shows that 41 case of napkin dermatitis were caused by pure bacterial infection 20 cases were found to be staphyllococci 48.7 % , 9 cases were found to be streptococci 21.95 % and 12 cases were found to be Gram-ve bacilli 29.26 % (E. Coli 12.11 %, Klelbsiella 9.02 % and pseudomonas.

Distribution of the different species of candida isolated from napkin area.

Clinical cases associated w. napkin dermat.	cases positive for candida	Candida albicans.	Candida Tropicolis	Candida Pseudotrop.	Candida Kruesi.	Cand.parapsillos.	Cand.guleere.	Cand.stello-toide
gastroenteritis	5	5	-	-	-	-		
Malnutrition	29	26	1	-	2	-		
Total	31	31	1	-	2	-		
Percentage		91.17%	2.94%	-	5.88%	-		

This table No. "3" shows that 34 cases due to candida infection from which 31 case were found to be Candida albicans (91.17 %), one case was found to be Candida tropicalis (2.94 %) and two cases were found to be Candida Kruesi (5.88 %).

Distribution of the different species of bacteria that were isolated together with candida in cases of napkin dermatitis.

Clinical cases associated	Candida + Staph.	Candida + Strept.	Candida + E. Coli.	Candida + Pseudom.
gastroenteritis	9	3	2	1
Malnutrition	10	-	-	-
Total	19	3	2	1
Percentage	76%	12%	8%	4%

Table No. "4" shows that 25 cases of napkin dermatitis were caused by mixed candidal and bacterial infection 19 were found to be caused by mixed candida and Staph (73 %) from which 9 cases associated with gastroenteritis andtwo cases associated with malnutrition 3 cases 12 % were found to be caused by candida and streptococci only in cases associated with gastroenteritis

Two case 8 % were found to be caused by candida and E. coli also in cases associated w. diarrehea. and one case (1 %) was found to be caused by candida and Pseudomonas in case associated with diarrehea also.

Results obained in control cases :-

From the 25 control cases we can isolate one case (4%) Candida albicans, and one case (4%) staph. albus.

Discussion

DISCUSSION

Proper management of a disease depends not only on accurate diagnosis but also on finding its specific cause.

More over prevention of a disease to occur is for beneficial than its treatment.

The causes of napkin dermatitis as determined by the Bacteriological and Mycological study in this work can be classified as follow :-

1. A group of pure candida infection. (34 %)
2. A group of pure Bacterial infection. (41 %)
3. A group of Mixed infection. (25 %)

The previous study carried in 73 patient with napkin dermatitis by Maleville (1977) showed that in 50 % of the cases Candida albicans was the cause, while 60 % were due to Staphylocous aureus. Out of the 73 cases 16 were found to have both organisms.

We think that the difference between these results and our results is mainly due to the difference in the environmental circumstances of the studied cases.

All cases studied were of low socioeconomic standerd and living under bad hygenic circumstances, most of them were suffering from malnutrition and accordingly a large group of them was victim to repeated attacks of gastroententis caused by various aetiological organisms.

It has been claimed by Leyden "1978" that highly ammonical urine is not considered as a sole aetiological factor of napkin dermatitis when these is an intact skin, but there must be predisposing and activating factors.

Among the predisposing factors for napkin dermatitis some are genetically inhirited, and some are due systemic diseases which alter the response of the cutenous system.

As regard the activating factors, they could be maceration, sweet retension, primary irritant factors as the stools and urine, infection and goneigenic factors.

Among previously mentioned activating factors, many played a major role in our cases where the lack of cleanliness and infrequent change of the wet napkin strongly contribute to dermatitis.

The wet napkins produced macerations of the skin which subsequently lead to sweet retension.

The urine in the sooked napkin acted as a primary irritant factor through the action of the contaminating bacteria which produced proteolytic and puterifactive enzymes.

In our present study Malnutrition was another important factor among positive cases in which the resistence of the skin lowerd with resultant atrophy and fissuring of the skin

thus giving the way for bacterial and fungal invasion. The casses associated with Malnutrition this study were 43 from which 29 cases caused by pure Candida infection and 3 cases caused by pure bacterial infection also 11 cases caused by Mixed infection.

The cases associated with gastroentrites in this study were 57 cases from which 5 cases caused by pure candidal infection, 38 cases caused by pure bacterial infection also 14 cases caused by Mixed infection.

The cases found to have candidiasis in the present study were 34 (34 %) of the total number of cases from which 29 cases suffer from malnutrition and maternal neglect, and 5 cases only suffering from glastroenteritis

From these findings we can conclude that Candida is the most important pathogen in case suffrening from malnutrition.

From these findings we can conclude that Candida is an important pathogen in cases of infants associated with malnutrition rather than infants suffering from diarrhea with dermatitis which may due to the fact that Candida as opportunistic organisms can grow better with lowering the general conditions of patient more than lowering the local resistence of skin by diarrhea in napkin's area.

The study done by Maleville (1977) showed that Candida albicans was the only species of the Candida found to cause napkin dermatitis but in our present study it has been found that in addition to the predominance of Candida albicans (91.17 %); other speices of Candida were found to cause napkin dermatitis, these species were in 2 cases Candida kruesi (5.8%) and 1 one case Candida tropicalis (2.94%).

It is to be mentioned that those species of Candida have not been reported before as a

cause of napkin dermatitis.

All cases of napkin dermatitis associated with gastroenteritis presonted as erythema and redness in the area around anal orifice and extending to involve the intertriginous area.

It was long beleived that the acid reaction of the stool is the only factor causing the napkin erythma in cases of diarrhea. The organisms responsible for the diarrhea could as well play a role in the causation of erythema.

In fact all the cases with diarrhea and erythema showed positive culture for bacteria and or Candida; in which bacteria were more important than Candida. In this study the cases associated with diarrheas the infection which pure bacteria was 38 cases (66.66%). and cases which positive for Candida were 5 case only (8.77%).

Moreover the acidity of the stool causes erosion of the superficial layer of the skin

facilitating bacterial invasion to deeper layers, Needless to mention that this acidity can destroy the sabrophytic organisms living on the skin making it vulnerable to invasion by the virulent bacteria .

It has been found in this study that the greater the degree of dehydration in cases of gastroenteritis, the more the extension of napkin dermatitis, this may attributed to the prolonged time of exposure to the multiple activating factors, moreover a state of dehydration of the cells of the skin of the napkin area results in making skin layers less vital and more vulnarable to action of acidic stool and bacterial invasion .

It was noticed from the results that in napkin dermatitis associated to gastroenteritis,there is an increased incidence of bacteria as aetiological factor (66.66%) if compared to napkin dermatitis in cases of malnutrition (6.97%),

on the contrary there is an increased incidence of Candida as an aetiological factor for napkin dermatis in case of malnutrition (67.44%) if compared to napkin dermatitis in case of gastro-enteritis (8.77%).

This has been attributed to the presence of bacteria in the infective diarrheal stool in addition to the previously mentioned predisposing factors present in diarrheal stool.

Napkin dermatitis in malnutrition is mainly caused by Candida and to less extent by bacteria where in the napkin erythema in gastroenteritis is mostly due to bacterial invasion from infected stool.

The cases found to have bacteria in the present study were 41 cases (41 %) of the total number of cases from which 38 cases sufframing from gastroenteris and 3 cases only suffer from mal-nutrition.

From the 41 cases of bacterial infection we found 20 case positive for staplylIcocci and 9 case positive for streptococci and 12 cases positive for Gram-ve bacilli.

A point of clinical importance that in treatment of cases of napkin dermatitis both antimycotic and antibacterial measures should be used in parrllel with treatment the predisposing factors and raising the general condition of the infants.