Clinical Pharmacy

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Childhood Conditions

1-Oral thrush

Thrush (Candidosis) is a fungal infection caused by ***Candida albicans*** which occurs commonly in the mouth (**oral thrush**) [1]. It is common in new born babies because they can pick up the organism during passage through an infected birth canal [2].
It may also occur in the **nappy area** in the babies and in the **vagina** [1].

Patient Assessment with Oral Thrush:

A-Age:

Oral thrush is most common in babies. In older children and adults it is rarer and it may be **a sign of immunosuppressant** and **referral** to the Dr. is advisable [1].

B-Affected area:

Oral thrush can occur anywhere in oral cavity (**mainly on the surface of the tongue** and insides of the cheeks) [1].

C-Appearance:

Oral thrush occurs as a **creamy white soft elevated patches which resemble milk curds** (but oral thrush differ from milk curds in that it is **not so easily** removed and when it is scraped , a sore **and reddened area will be seen which may sometimes bleed**) [1].

D-Previous history:

Patients who experience **recurrent infections should be referred** for further investigations [1].

E-Medications:

1- Broad–spectrum antibiotics can predispose to oral thrush [1].
2-Immunosuppressive Agents: like cytotoxic and steroids (oral or inhaled) can predispose to oral thrush (Rinsing the mouth with water after the use of inhaled steroid may be helpful) [1].

Treatment timescale

If symptoms are not cleared within **1 week,** then patient should see a doctor [1].

Management

Miconazole Oral Gel:

1-The only specially formulated product currently available for sale OTC to treat oral thrush is miconazole gel [1].

2-Preparations containing nystatin are also effective but are restricted to prescription-only status [1].
Dose for infants and children under 2 years is:

A-Neonate: 1 mL 2–4 times a day treatment should be continued for at least 7 days after lesions have healed or symptoms have cleared, to be smeared around the inside of the mouth after feeds [3].

B-Child 1 month–1 year: 1.25 mL 4 times a day treatment should be continued for at least 7 days after lesions have healed or symptoms have cleared, to be smeared around the inside of the mouth after feeds [3].

Practical points

1-Patients should be advised **to hold the gel in the mouth for as long as possible** [1].
2-For young babies, the gel can be **applied directly to lesion using a cotton bud or the handle of a teaspoon** [1].
3-Treatment may be enhanced by **cleaning the white plug off with a cotton bud prior to the application of the gel** [1].
4-The pharmacist **should check whether nappy rash is also presents** [in the napkin area, candidal infection present as red papules on the outer edge of the area of napkin rash (satellite papules), another feature is that the skin in the skin folds is nearly always affected] [1].
In this case an antifungal cream containing miconazole or clotrimazole can be used for the nappy area (see napkin rash) [1].
5-Where the mother is **breast feeding**; a small amount of miconazole gel applied to the nipple will eradicated any fungus present [1].

References
1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 8th edition. 2018.
2-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press. 2010.
3-BNF for children. September 2017-2018.

2-Threadworms (Pinworms)

Infection with threadworm (***Entrobius vermicularis*****)** is common in young children [1]. Eggs are transmitted to the human most primarily by the faecal-oral route (e.g. eggs lodging under fingernails) which are ingested by finger sucking after anal contact [2]. Eggs can survive for up to a week outside the human host [3].

Patient assessment:

A-Clinical feature

1-**Perianal itching** is the classic presentation and any child with **night-time** perianal itching is almost certain to have threadworm [2](females worms emerge from the anus at night to lay their eggs on the surrounding skin. The eggs are secreted together with a sticky irritant fluid onto the perianal skin) [1].

2-The intense itching caused by the sticky secretion [4]. Itching can lead to sleep disturbances resulting in irritability and tiredness the next day [1].

3-In girls, migration to the vagina can cause intense irritation, which may be confused with thrush [3].
4-Diagnosis can be confirmed by **observing threadworm on the stool** [2] (white- or cream-colored thread-like objects, about 10 mm in length and less than 0.5 mm in width. The worms can survive outside the body for a short time and hence may be seen to be moving) [1].

5-Itching without sighting the threadworm may be due to other causes such as allergic dermatitis caused for e.g. by soaps [1].

6-Complicating factors such as secondary bacterial infection of the perianal skin can occur due to persistent scratching. The parent should be asked if the perianal skin is broken or weeping [2].

B-Other family members

The pharmacist should enquire whether any **other member of the family is experiencing the same symptoms**. However, the absence of perianal itching and threadworms in the faeces does not mean that the person is not infected (during the early stages, these symptoms may not occur) [1].

C-Recent travel abroad

If any infection other than threadworm is suspected, patients should be referred to their doctor for further investigation. If the person has recently travelled abroad, this information should be passed on to the doctor so that other types of worm can be considered [1].

D-Medication:

The pharmacist should about the identity of any recent treatment tried **and how the treatment was used.** Any treatment failure (correct use without benefit) required referral [1].

Management:

A-Mebendazole :(OTC in UK) (Vermox®: tablet and suspension).
1-Dose: for adult and children above 2 years is: **100 mg as single dose** [4].
A repeated dose 14 days [2] (2-3 weeks)[1] later is often recommended to ensure worms maturing from ova at the time of the first dose are also eradicated [2].

2-Mebendazole is not licensed for use in children under 2 years of age, in pregnant or breastfeeding women when sold without prescription [4].

B-Pyrantel pamoate : OTC in the USA and Canada (liquid, caplet, or chewable tablet):
1-Dose: for adult and children above 2 years is: 11mg/kg (max.1 g) as single dose.

The dose can be repeated in 2 weeks if symptoms do not resolve because reinfection can occur [5] (in USA, the repeat dose should be administered only after consultation with a doctor [5] while in Canada, treatment of **symptomatic household** members should be repeated to decrease the likelihood of reinfection [6]).

2-Pyrantel pamoate may be taken at any time of the day without regard to meals, and it may be taken or mixed with milk or fruit juice. A special diet or fasting before or after administration is not necessary [5].

Practical points:

1-Parents are often **anxious and ashamed** that their child has a threadworm, thinking that lack of hygiene is responsible. The pharmacist can **reassure them that it is a common condition** and any child can become infected and it does not indicate a lack of attention [1].

2-**All family members** should be treated at the same time this is because they may be in the early stages of infection and thus asymptomatic [1].

3-Transmission and re-infection by threadworm can be prevented by the following practice measures:

A-**Cutting fingernails short.** Hands should be washed after going to toilet and before preparing or eating food [1].

B-**Affected members having a bath or shower** each morning during the treatment period to wash away the eggs which were laid during the previous night [1].

C-**Change and wash your underwear each day** [5] (for 3 weeks) [6].

D-**Discourage biting nails and scratching anal area** [5].

4-Pregnant women should be advised to practice hygiene measures for 6 weeks to break the cycle of infection [2].

References

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 8th edition. 2018.
2-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 8th edition. 2021.
3-Nathan A. fasttrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.
4-Nathan A. Non-prescription medicines. 4th edition. London: Pharmaceutical Press. 2010.
5-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.
6-Canadian American pharmacists association (CPhA). CTMA: Compendium of Therapeutics for Minor Ailments. 2014.

3-Colic

There is no universally agreed definition of colic. A widely used definition of colic known as the **'rule of threes'**. An infant could be considered to have colic if he or she cries for more than **3 hours a day** for more than **3 days a week** for more than **3 weeks** [1]. However, few parents are willing to wait 3 weeks to see if the infant meets the criteria for colic. As a result in the clinical setting colic is usually defined as repeated episodes of excessive and inconsolable crying in an infant that otherwise appears to be healthy [1].

The cause of colic is poorly understood but seems to be multifactorial [1]. Colic generally starts in the early weeks and may last up to the age of 3–4 months [2].

Patient Assessment with Colic:

A-Duration of colic:

Rule of three (but see the above note)

B-Clinical features of colic:

1-Mothers usually describe crying that occurs in the late afternoon and evening [2] [Attacks appear to be more common in the early evening giving rise to the name '6:00 pm colic'][1] , where the baby cannot be comforted, becomes red in the face and may draw the knees up [2].

2-Passing wind and difficulty in passing stools may also occur [2].

C-History of crying:

1-Colic and acute infections of the **ear** or **urinary tract** can present with almost identical symptoms. However, in acute infection the child should have no previous history of excessive crying and **have signs of systemic infection such as fever** [1].

2-Infants may excessively cry for reasons other than a medical cause, for example, hunger, thirst, being too hot or cold. These should be considered before diagnosing colic [1].

D-Intolerance to cow milk :

Colicky pain in infants is sometimes due to intolerance to cows' milk protein. This is far less common than generally believed but should be considered if the **infant is failing to thrive** [1].

E-Feeding technique:

Underfeeding the baby can result in excessive sucking resulting in air being swallowed leading to colic –like symptoms. Additionally the teat size of the bottle should be checked. When the bottle is turned upside down the milk should drop slowly from the bottle [1].

Management:

1-Parents should be reassured that the child's symptoms will **subside over time** [1].

2-**Simeticone** is reported to have antifoaming properties, reducing surface tension and allowing easier elimination of gas from the gut by passing flatus or belching. It is widely used yet has very **limited evidence of efficacy** [1].

3-Simeticone is pharmacologically inert; it has no side effects, drug interactions or precautions in its use and can therefore be safely prescribed to all infants [1].
Dose: according to the product.

References

1-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 5th edition. 2021.
2-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 8th edition. 2018.

4-Napkin rash (also called diaper dermatitis, nappy rash)

Napkin rash refer to the erythematous rash that appear on the buttock area during infancy. Contributing factors includes:

1-Contact of urine and faeces with the skin.

2-Wetness of the skin due to infrequent nappy changes and inadequate skin care [1].

Patient Assessment with Napkin Rash.

A-location:

Napkin rash affect the diaper region (buttock, lower abdomen, and the inner thighs) [2]; therefore, involvement of rash away from nappy area required referral [3].

B-Severity [1]:

1-In general , if the skin is unbroken and there are no signs of bacterial infection, treatment may be considered.

2-If signs of **bacterial infection** is present (weeping, yellow crusting, oozing blood or pus), then referral is required.

3-**Secondary fungal infection is common** [characterized by the presence of satellite papules (small red lesions near the perimeter of the affected area)], then pharmacist can recommend one of the OTC azole antifungal (see antifungal later).

C-Duration:

Napkin rash of **longer than 2 weeks** duration may be referred [1].

D-Previous history:

To identify the identity and effectiveness of any products used for the current or previous episodes [1].

Treatment timescale:

A baby with nappy rash that does not respond to skin care and OTC treatment **within 1 week** should be seen by the doctor [1].

Management:

A-Skin care:

1-Nappies should be **changed as frequently** as possible [1].

2-Nappies should be **left off wherever possible** so that air is able to circulate around the skin and helping in drying the skin [1].

3-At each nappy changes the **skin should be cleansed thoroughly with warm water** and then dried carefully. the use of talc powder may be helpful , but the clumping of the

powder can lead sometimes to further irritation. Talc powder should be applied to dry skin and dusted lightly over the nappy area [1].

Note: powder is poured into the hands then gently rubbed onto the skin but keep away from the face of the child to prevent inhalation of the powder which may lead to breathing problems[2].

B-Skin protectants (Barrier preparation, Emollient):

1-Examples: Zinc oxide, castor oil, talc powder, white petrolatum, calamine, cetrimide (celavex® cream: which has antibacterial property also),…….

2-They absorb moisture or prevent moisture from coming in contact with the skin (act as a barrier between the skin and outside). Also they serve as a lubricant in area of the skin in which skin-to-skin friction could aggravate diaper rash [2].

3-They are applied **at each nappy changes,** after cleansing the skin [1].

C-Antifungal:

1-Secondary infection with Candida is common in napkin dermatitis and the azole antifungals would be effective [1].

2-Miconazole or clotrimazole applied **twice daily** could be recommended by the pharmacist with advice to **consult the doctor if the rash has not improved within 5 days.**
If an antifungal cream is advised, treatment should be continued **for 4 or 5 days after the symptoms have apparently cleared** [1].

2-An emollient cream or ointment can still be applied over the antifungal product [1].

References

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy . A guide to the managements of common illness. 8th edition. 2021.
2- American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 18th edition. 2016.
3-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 5th edition. 2021

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