Paediatric Pearls Minor Injuries Series (Dr Jess Spedding, paediatric emergency medicine specialist registrar)

Minor Head and Facial Injuries

For the final instalment of this short series, I have decided to move away from common upper and lower limb injuries and look this time at the assessment and management of minor head and facial injuries.

This is a very important group of paediatric patients as it is a very common presentation and can cause great anxiety amongst healthcare professionals because of the small but serious risk of there being a serious underlying brain injury accompanying the external signs of injury.

Internationally a great deal of work has gone into defining those head injuries which cause sufficient concern to warrant imaging (which is nowadays a CT scan without skull XR in the UK). In the UK we use the NICE guidelines for which there are specific paediatric considerations and variations.

As with all guidelines, they are just that, guidelines. Whilst I would be unlikely to deny a patient a CT head if they met NICE’s scanning criteria, I may decide to scan some who don’t fulfil NICE but for whom I have a bad feeling about (gut feelings have been shown to have validity!). Obviously if you’re relatively inexperienced in assessing head injured children a first port of call would be to get a senior review.

So follow NICE or, in ED, your department’s paediatric head injury proforma (most departments have them) and tailor your approach accordingly.

NICE guidelines are found at this link:


Page 9 (copied below) gives you the flow chart for patients under 16 years of age:
The purpose of this episode is not to cover those who fulfill criteria for a scan, instead it looks at the vast, vast majority who do not. All those needing a scan should be discussed immediately with someone senior and a scan organised as a matter of urgency with radiologist available to interpret the scan immediately and hospital facilities to look after the potentially brain injured child. DO NOT TRY TO MANAGE THESE PATIENTS ON YOUR OWN UNLESS THAT IS SOMETHING YOU HAVE A GREAT DEAL OF EXPERIENCE IN!

Minor head injuries:

You have carried out a history and exam which covers all the points raised in NICE’s guideline, and remember head injuries should raise alarm bells for non accidental injury particularly in the under 1 year group (i.e. mainly not independently mobile). Therefore remember to ask about the mechanism and determine whether that seems plausible in that child. Also obtain a basic social history for the child and siblings, and check that the child is not already known to local social services.
The head is a very common site of injury in the toddling age group; as they learn to walk and play, they fall a great deal. Their heads are larger proportionally and their limbs shorter, so they do not always manage to break their fall by putting their arms out to protect their heads as humans do instinctively.

Categories of minor head injury:

**Nil visible:**

Often the mechanism is not associated with any visible sign of injury, but the parents have sought advice and reassurance from you. In these children, follow the standard assessment to ensure this is a minor injury, then always discharge the family with written and explained head injury advice such as that below:

We have assessed your child as ready to leave hospital now. When you get them home it is very unlikely that they will have any further problems.

But if any of the following symptoms do return we suggest you take your child to the nearest hospital Accident & Emergency department as soon as possible:

- **Unconsciousness or lack of full consciousness** (for example, problems keeping eyes open).
- **Any confusion** (not knowing where they are, getting things muddled up).
- **Any drowsiness** (feeling sleepy) that goes on for longer than 1 hour when they would normally be wide awake.
- **Difficulty waking them up.**
- **Any problems understanding or speaking.**
- **Any loss of balance or problems walking.**
- **Any weakness in one or more arms or legs.**
- **Any problems with their eyesight.**
- **Very painful headache** that won’t go away.
- **Any vomiting – getting sick.**
- **Any fits (collapsing or passing out suddenly).**
- **Clear fluid coming out of their ear or nose.**
- **New bleeding from one or both ears.**
- **New deafness in one or both ears.**

**THINGS YOU SHOULD NOT WORRY ABOUT**

Your child may experience some other symptoms over the next few days, which should disappear in the next 2 weeks. These include a mild headache, feeling sick without vomiting, dizziness, irritability or bad temper, problems concentrating or problems with memory, tiredness, lack of appetite or problems sleeping.

If you feel very concerned about any of these symptoms in the first few days after discharge, you should take your child to their General Practitioner (GP). If these problems do not go away after 2 weeks, you should take your child to see their GP.

**THINGS THAT WILL HELP YOUR CHILD GET BETTER**

If you follow this advice it should help your child get better more quickly and it may help any symptoms they have to go away.

- **DO** ensure they have plenty of rest and avoid stressful situations.
- **DO NOT** let them take sleeping pills, sedatives or tranquillisers unless they are given by a doctor.
- **DO NOT** let them play any contact sport (for example, football) for at least 3 weeks without talking to their GP first.
- **DO NOT** allow them to return to school until you feel they have completely recovered.
- **DO NOT** leave your child alone in the home for the first 48 hours after leaving hospital.
- **DO** make sure that there is a telephone nearby and that you stay within easy reach if medical help is needed.

**Visible closed injury:**

This is typically an abrasion or haematoma. The larger the haematoma, the more anxious the practitioner. Remember to correlate with the mechanism to ensure it seems consistent. Frontal (forehead) contusions are the commonest whilst temporal are less common and potentially more serious as the bone is thin and major intracranial vessels vulnerable to damage in that region. Remember to look at the whole scalp, working your way over the surface of the skull systematically to ensure you have not missed other injuries.
The whole scalp is very vascular, they can be large ‘egg’s causing great parental anxiety. Try to move the skin and palpate the underlying bone to ensure it feels intact and palpate the haematoma to make sure it is not ‘boggy’ – again if you have any uncertainty about the severity of the injury, consult a senior.

**Open injuries:**

Often the child will present with a laceration to the forehead, scalp or around the chin or mouth and each area should be considered individually when considering means of closing and dressing the wound(s). Remember closure techniques available to health practitioners will be different in the uncooperative, scared toddler than the options one has with the (usually) sanguine adult patient! Remember the same rules apply to children’s head wounds as to wounds anywhere – all must be adequately cleaned, closed in a timely fashion (or by delayed secondary closure – i.e. cleaned and sterile dressed then reviewed and closed 48h later) and you must remember to assess tetanus risk for the injury and the patient’s tetanus immunity status. In larger EDs there may be a play specialist available to help prepare the child for a painful or scary procedure, and to help distract or reward them during cleaning and closing – don’t forget to use this invaluable resource! If not, use a colleague to try similar techniques and don’t ever just charge towards a child with stitches and tweezers in gloved hands.

**Scalp covered by hair:**

The aim is to close the wound effectively to allow healing and prevent infection. Concerns about cosmetic perfection are less important than for facial injuries. Often one can bring wound edges together after irrigating, and then use tissue adhesive (skin glue) to adequately oppose the skin edges, providing haemostasis. There is usually no need to cut hair but do keep it out of the wound. It is very difficult to apply a dressing to hair, so advice must be given to the child and parents to keep the area clean and dry at least for a few days to allow the glue to hold the wound edges together until wound healing is well underway and will proffer adequate strength so as not to re open easily.

**Forehead:**

As with all wounds, depth is important in deciding if you are capable of closing the wound – if it is only partial skin thickness and not gaping open, glue or steristrips should allow relatively easy, less distressing closure with good cosmetic results, no suture marks and no distressing repeat visit to a doctor or nurse for stitches to be removed. However if the wound is deep, ragged edged, very contaminated, or close to a delicate structure such as eye, lacrimal gland, or lip, seek advice from a senior or from maxillo-facial team.

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If it is a simple forehead laceration but deep enough to require sutures, you will need to gauge the child’s ability to cooperate with both local anaesthetic insertion and then sitting still for suture application. Be aware of what your local department is capable of: all EDs should have entonox, some EDs have a topical anaesthetic gel which can be placed on the wound for 20 minutes and works as well as lidocaine infiltration with a needle, some EDs offer a sedation service (usually using IV ketamine) which allows for short surgical procedures to be in the ED rather than in general theatres, and again do not forget the play specialist’s role in supporting the slightly older child through the procedure awake.

**Chin:**

The chin is a very common point of contact in children’s facial injuries (the image above is typical), and lies somewhere in between face and scalp in terms of its cosmetic importance – if unsure review with a senior to decide if closure is acceptable using steristrips or glue.

**Lips:**

Another common site, and very important to provide good alignment of the vermilion border – even 1mm misalignment will be visible for life, so most lacerations through the lip line are referred to maxillofacial specialists for closure.

**Eyebrows:**
Another common site for injury, due to the bony prominence of the brow. Whilst not as cosmetically important as lips, it is important to achieve good alignment and to remember the location of the lacrimal gland.

**Post hospital advice:**

Do not forget wound care after hospital management is as important as the measures you have taken.

The aims of wound care are:

- To allow wound healing
- To avoid infection
- To provide a good cosmetic result

Your guidance for post hospital care should be given to the parents in writing.

The wound should be kept clean and dry and uncontaminated (which may mean a non adhesive dressing is helpful and a dressing also helps to prevent toddlers’ fingers picking at a recently closed wound). Consideration should be given to the use of a petroleum (Vaseline) based topical antibiotic preparation – chloramphenicol eye ointment is commonly used by maxfax doctors in the EDs I have worked in. This will provide not only antibacterial cover but a physical moist barrier which has been shown to improve wound healing underneath and reduce wound infection rates. Aiming for at least 48h of treatment three or four times a day is a sensible regimen. Parents should be advised to inspect the wound regularly for signs of infection or dehiscence (break down) and should be advised to seek urgent review in those cases.

This episode is not attempting to teach you the principles of wound assessment and closure, but hopes to equip you with a basic approach to minor head and facial injuries and points out some important considerations that should aid your decision making in this group of patients.