

## REVIEW

# "Labor improbus omnia vincit"; Ambroise Paré and sixteenth century child care

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Ambroise Paré (1510–1590) is regarded as one of the greatest surgeons who ever lived. In the sixteenth century, through his example and his writings, Paré did more than anybody else to raise the previously poor reputation of surgery "to one of dignity and esteem."<sup>1</sup> He significantly influenced the surgical management of wounds, especially those produced by gunshot.<sup>2</sup> However, he wrote widely on other areas as well. Although Paré's writings on obstetrics<sup>3</sup> and infant feeding<sup>4</sup> have been previously described, there has been little attention given to the other paediatric cases described in his case notes, which this review now addresses.

Paré's origins were humble. Born the son of a barber in the small town of Laval, he rose to become the surgeon to four successive kings of France. He started his surgical training as an apprentice to a barber-surgeon when he was 15 and rose to become head of the Royal College of Surgeons in 1567, in spite of never learning Latin. His rise to fame was very much a story of talent overcoming adversity. In a very active surgical career he served in no less than 17 military campaigns. There is some debate as to whether Paré was a Catholic or Protestant. Certainly he had friends in both camps, and although he outwardly conformed to Catholicism, his inward sentiments were Protestant.<sup>1</sup>

Within surgery he is generally remembered for his treatment of gunshot wounds (early in his career in 1537) and also for being the first surgeon to apply ligatures to arteries during amputations.<sup>1</sup> A famous war surgeon and familiar with battlefield injuries (fig 2), Paré would treat those who needed his skills and he recorded his practice both within and without the theatre of war. His oeuvre relates many hundreds of cases and his success or otherwise in their management.

Earlier work on Paré has concentrated on different areas of childcare. G F Still recognised Paré's important contribution to infant feeding.<sup>4</sup> Paré's obstetric management as well as a description of the management of congenital dislocation of the hip has already been described.<sup>3</sup> This paper describes some of Paré's paediatric case reports, which have surprisingly received little previous interest. Paré gives clear concise histories, relating his successes and failures and his thoughts as he managed them.

I have used Hamby's 1960 translation of selections from *Oeuvres Complètes d'Ambroise Paré*, published in 1840,<sup>5</sup> and have taken the illustrations from this 1840 work.<sup>6</sup>

## PAEDIATRIC TRAUMA

Many of Paré's cases are unsurprisingly concerned with paediatric trauma. Although the reasons for presentation may have changed, the consequences can still be extremely serious.

### Child mauled by a lion

Paré relates the case of a 12 year old girl who was attacked by one of the king's lions that had escaped. The lion "engulfed her head and made several wounds without breaking any bones."

"Some days later I was called to see her. I found her feverish, with great swelling and inflammation of the whole head, shoulder and the chest, chiefly where the lion's teeth had entered. The edges of the wound were livid and they drained serious material, virulent, acrid and so fetid as to be almost intolerable, like carrion, of greenish to black colour. The girl suffered severe stabbing and grinding pain. Seeing these complications, I promptly recalled that the ancients had left in the writings that all lacerations and bites of



Figure 1 Ambroise Paré.

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beasts (and those made by men also) were poisoned in greater to lesser degree. So I concluded that it was necessary to let out the poison made by the teeth and claws of the lion and to apply remedies to counteract the poisons. I made several incisions around the wounds and applied leeches to draw out the poison and deplete the inflamed parts."

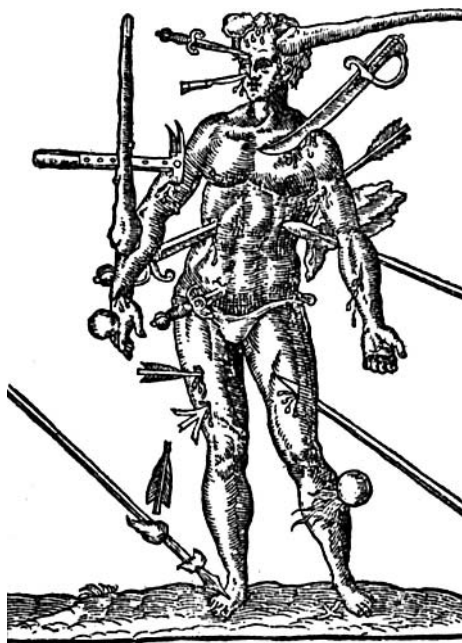
Paré then relates the medical treatments given.

"You can be assured that after the first application of these dressings, the pain in the inflammation and the other complications began to diminish and she finally recovered. For more than two years, from being fat and well rounded, she remained thin and slender in all her extremities, but at present she is very well." (M11, 41)

### Paediatric burns

Burns remain an important cause of paediatric trauma and disability. Paré relates his success in managing a child, burnt when placed too close to a fire.

"That which I have sometimes seen happened recently to a child aged about ten years who was found in a wood all frozen, unable to move or speak, having only a little respiration. After being brought out of the wood he was put near the fire where he was so warmed up that the larger part of one of his legs was burned nearly to the bone. Several, seeing the leg so badly burned, thought the scar would be so large and so hard that it would make the part insensible, and concluded it would be more expedient to remove it. For this I was called, but I promptly scarified it with several deep incisions to which I applied unsalted butter, with rose oil and egg yolks in good quantity to make the crusts come off. Under the knees I put unguentum contritum, with compresses and bandages treated with oxycrate. These were renewed often to inhibit and prevent



**Figure 2** "The Wounded Man", taken from the *Apologie and Treatise of Ambroise Paré*.

the flow of humours which cause pain. After the crusts fell off I applied album rhasig ointment and poplar salve equal parts, mixed and beaten in a lead mortar. Egg whites were used to stop pain, which stopped. I increased the drying remedies, etc until the ulcer was full and ready to scar over. Then I bathed the ulcer several times with chalk lotion using a drying powder after the bathing. As a result the child was perfectly healed." (M11, 209)

### Child run over by a coach

Paediatric trauma is an ongoing area of concern, although its nature clearly changes depending on the period being considered. In our present age automobile injuries to children are frequent, but in the sixteenth century Paré makes it clear that horse driven vehicles could produce equally serious injuries.

"On June 7, 1582, the twenty-six month old son of Mathurin le Beau, Merchant Milliner living at the Sign of the Silver Crown in rue St. Denis, was in the middle of the street when the wheels of a coach loaded with five Gentlemen passed across his body. The people cried to the Coachman, who stopped his horses, pulled them back and the wheel again went over the baby's body. He was carried into his father's house, thought to be dead and eviscerated. I was called immediately to treat the child. When I examined him very carefully I could find no fracture nor dislocation anywhere in his body. I immediately sent to the Paris gate to get a sheep. I had it skinned, and after rubbing the infant's body with oil of rose and myrtle, I wrapped him naked in the hot sheepskin. Then I gave him oxycrate to drink instead of Mummy to prevent the blood from curdling and congealing in the body. In addition, I told the mother to keep him from sleeping as much as possible for at least four to five hours, so the blood would not run so much to the interior of the body (which she did). Moreover I applied fomentations of resolving herbs and plasters proper for contusions, to dissolve the bruised blood.

Three or four days later seeing that the child could not hold himself up, and still less walk, I called M. Piètre, Regent Physician in the Faculty of Medicine, a man of excellent knowledge, who ordered some little medication for him, for he was very constipated. We feared the retention of excrements resulted from a lesion of the spine and nerves which loosen and expel excrements. Patients who have broken or dislocated their vertebrae, often let their excrements go involuntarily, at other times they are retained without power to evacuate them. I have seen this several times. I have also seen that from great contusion, the ribs can separate from the vertebrae, where they are joined. So the failure to support himself and walk made me fear I had not found the evil by sight and touch. Knowing that two eyes see more than one, I called Jean Cointeret and Jacques Guillemeau, King's Surgeons, as well as experienced in surgery as they have in Paris. They came and examined the child, on whom they found no fracture or dislocation. Thus the treatment was pursued to the end and he was healed thanks to God. He walked as he did before he was hurt." (M111, 489)

The case clearly relates Paré's experience in dealing with similar cases, although with a less satisfactory outcome than

this one. Paré's humility in unhesitatingly seeking a second opinion, if it would benefit the patient, is striking.

**HEAD INJURY**

**Skull fracture, with loss of brain tissue**

This fascinating case provoked an interesting debate as to whether the patient had indeed lost brain tissue as a result of his injury and gives an excellent example of Paré's therapeutic and diagnostic method.

"In the year 1538 ... as Surgeon of the late M. de Maréschal de Montejan I treated one of his pages who was struck on the head by a stone thrown by one of his companions playing quoits. The blow was in the right parietal area, with fracture and separation of the bone so that brain substance the size of half a filbert escaped. Seeing this I pronounced the wound a deadly one. At this a young Physician came up and argued vigorously against me saying this was not a piece of brain substance but a piece of fat. I told him to keep the stuff while I dressed the patient and I would prove what I had said to be true. After treating the Page, to prove by reason and experience that this piece of brain could not be fat, I told him that what is inside the skull cannot be fat, although the parts be cold, because of the great quantity of very hot and subtle animal spirits and the heat of the vapors from all parts of the body rising to the head, such things prevent the development of fat. As for experience, in the dissection of dead bodies, fat had never been found there. Yet he wished to gain his end by continuing to protest. Finally I told him that experiments would give us the answer. Several Gentlemen and others present wanted to see this. So I held that if this was fat, it should float in water: contrarily, if it was brain substance, it would sink. Moreover, if it was fat, it should melt in a hot pan; if it was brain, without frying or liquefying it should desiccate and become dry as parchment and finally burn, because it is stickly, humid and watery. These things were done and proved my assertions. Yet though the Page had lost a part of his brain, he recovered, although he remained deaf thereafter." (M11, 71)

**Suturing a partially severed tongue**

The following case describes Paré's dilemma and his consideration for the patient in always putting their best interest first.

"I was called to the house of the late M. Coüet, Advocate in Parlement, treat his three year old son who fell striking his chin on a stone. He bit off a good part of the tip of his tongue, which was held only by a bit of flesh. Having little hope that it could unite, I was about to remove it. Considering the very serious effect of inability to speak well and knowing how Nature sometimes does wonderful things, and since the tongue is made of flexible, relaxed and spongy flesh and not subject to injury by air, I changed my mind. I made two sutures, one upward and the other downward and told the mother to nourish the child as described earlier. I assure you that in a few days, the baby healed perfectly and presently talks very well." (M11, 88)

**DISABILITY**

**Conjoined twins**

Paré was interested in congenital abnormalities and wrote a chapter on monsters (fig 3). He gave examples of other cases.

"In Paris in 1546, a woman six months pregnant gave birth to an infant having two heads, two arms and four legs. I opened it and found only one heart. One can say then that this was a single infant. The monster is in my house, kept as a museum piece." (M111, 8)

It is of interest that in the twenty first century this latter child would be considered as being two infants and not one.

Like most medical practitioners of that time Paré believed that maternal imagination while pregnant could be a cause of defects in the child.<sup>4</sup>

**Hydrocephalus and intracranial effusion**

"I have seen four children, on one of whom I made a section after death. I found the brain no larger than a tennis ball. I have never seen one recover when the fluid is very abundant, within the head, but when it is external, recovery is expected." (M1, 377)

**A speaking appliance**

Paré writes with sympathy and compassion about disability. The following case illustrates how serendipity in an adult case can translate to a paediatric solution for what had seemed an intractable problem.

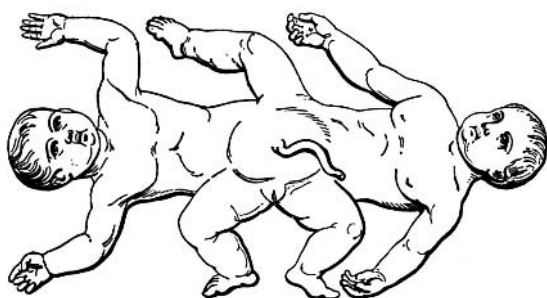
"A certain individual had part of his tongue cut off and lived three years unable to have his speech understood. It happened that he was in the fields with some reapers, drinking from a thin wooden disc. One of them tickled him as he had the dish between his teeth and he uttered words that could be understood. Immediately realising he had spoken thus, he took the dish and replaced it in the same position and spoke again, understandably. For a long time he carried it in his bosom, to help him talk, always putting it between his teeth.

Sometimes later her had made (by necessity, which is the Mother of Arts), a wooden instrument, as the figure shows, which he carried hanging from his neck. By these means he was able to make understood by speech all that he wished to say." (M11, 608)

DES MONSTRES ET PRODIGES.

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Portrait de deux enfans bien monstrueux, ausquels vn seul sexe feminin se manifeste.



**Figure 3** Portrait of two monstrous children, of which one single female genitalia is shown.



*Instrument pour aider à parler à un patient,  
lequel auroit portion de la langue coupée.*

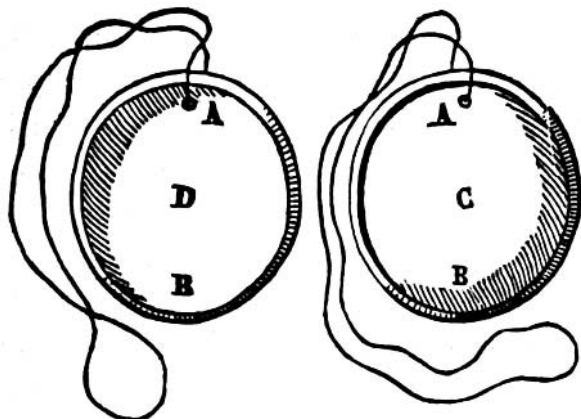


Figure 4 Paré's illustration of his speaking aid.

Paré then related his experience of using this instrument (fig 4).

"I knew a young lad whose tongue was cut off. Thanks to the use of this instrument he trained his speech so well that one could understand everything he wanted to say. With this proof, everyone can do the same when confronted with this problem." (M11, 609)

## GENERAL CARE OF CHILDREN

### Sudden infant death syndrome (SIDS)

In our present time, we understand that the only thing that children get from teething is teeth. However, in Paré's time and for several centuries afterwards, teething was still erroneously blamed for many symptoms; Paré was no different from his peers with this belief as in this early description of cot death.

"M. de Nemours asked me to autopsy his dead eight month old son, who had not erupted any teeth. Having carefully sought the cause of his death without finding anything except that the gums were very hard and swollen, I cut through them and found all the teeth ready to erupt, with a little help that might have come from incising the gums. The Doctors present and I concluded that the only cause of death was that Nature had not been strong enough to pierce the gums and push the teeth out. This was because at his age the gums were harder than those of an old person." (M11, 799)

Today, we would regard the sudden, unexplained death of an infant and absence of any pathological findings on necropsy as diagnostic of SIDS.<sup>7</sup> Paré's case may be one of the earliest descriptions of this condition.

### Failure to thrive

Failure to thrive is a paediatric challenge that has many causes, though in most cases it results in a happier outcome.

"A honest, rich wife begged her husband to let her nurse her baby. He permitted this, provided she take another nurse to help her nourish the infant. This nurse had the pox and gave it to the infant, the infant to the mother, she to her husband, and the husband to the two other children with whom he ordinarily ate and drank. They often slept with him not knowing that he was infected with this disease. But the mother saw that the baby was not gaining and cried constantly. She sent for me to know the cause of the illness, which was not hard to tell since the baby was covered with pimples and ulcers: the nipples of the nurse were ulcerated as were those of the mother. She had pimples on her body, as did the husband and the two small children, three and four years old. Then I told the father and the mother that they had syphilis, brought to them by the nurse. I treated them and they recovered, except the little baby, who died. The nurse was lashed in prison and would have had it in the streets had it not been for fear of dishonouring the house." (M11, 529)

Paré's rationale was that the child had caught syphilis from the nurse. We cannot exclude the possibility that both she and the child's mother had caught it from the father.

### Maternal suicide and death of child

Plague and other epidemic diseases have always been associated with warfare, and medical personnel are as susceptible as the common soldier to it. Paré relates this tragic case of a surgical family struck by plague and its terrible sequelae.

"Another case no less horrible happened ... Amy Basten, wife of a surgeon who had died of the plague was taken with the same contagion six days later. She fell into a dreamy state, then into a frenzy and went to the window of her room, holding and tormenting her baby in her arms. Her neighbours who saw her begged her not to hurt him, but instead of taking their advice, she hurled him heedlessly to the ground and then leaped after him. Thus the mother and infant died." (M111, 460)

### Exposure of quackery in alternative medical treatment of eczema

Paré was not afraid to expose fraudulent medical practice. He described examples relating the ineffectiveness of a unicorn's horn as a therapy. One case is of a child treated for eczema.

"Recently a poor woman asked for some unicorn water. It happened that (the merchant) had given it all away but did not want to put off this poor woman who with clasped hands begged it of her to give to stop the eczema that covered the whole face of her own little infant. In place of the unicorn water, she gave her river water in which she had not soaked the unicorn's horn. Nevertheless this river water did not fail to cure the baby's illness, for ten or twelve days later the poor woman came to thank Madam the Merchant for her unicorn water, telling her that her infant was all healed." (M111, 506)

Paré, although dubious of other nostrums such as mummy and bezoar, was almost as credulous in his belief the efficacy of theriac (a complicated distilled and fermented drug used as a preventive as well as a curative medication against "venoms").<sup>8</sup> He listed at least three formulas for its preparation (M11, 599, 600 and M111, 368)

### Constipation leading to death due to faecal retention

The management of constipation is a major part of paediatric practice. Although chronic sequelae can be serious, fortunately most cases are self limiting. However, in children who have cerebral palsy or other neuromuscular disorders, the problems can be severe and lifelong. Sudden onset as described by Paré also raises the possibility of meconium ileus, although it is not possible from the history to go further.

“I remember having opened the dead body of a twelve year old boy, who had all his intestines entirely filled with very hard, dry foecal matter. Before death, he passed this by mouth, which was the cause of his death, failure to get help at a suitable time.” (M11, 515)

### Maternal laxatives acting on baby through breast milk

We tend to consider the exposure of children to maternal medication through breast milk a relatively recently recognised medical phenomenon. Our knowledge in this area is still inadequate, being restricted to the general principle of prescribing only essential drugs to a breast feeding mother.<sup>9</sup> Paré clearly describes this phenomenon in this fascinating case.

“Similarly one sees, when Doctors want to purge an infant still at the breast, giving laxative medicines to the nurse makes their milk medicinal and laxative. I recently saw a sick nurse for whom the Doctors ordered laxative medicines: after nursing the infant had diarrhoea that was hard to arrest. This constrained them from treating another nurse until the medicine had ceased acting.” (M111, 288)

### Smallpox

At the time of writing, this fearsome disease still remains eradicated and consigned to medical history; let us hope that this remains true for future readers of this article. Paré gave many case histories of smallpox that demonstrate the diverse sequelae of this terrible disease. A single case leading to abscess of the sternum and shoulder, as an example, is given here.

“To give you a notable example, I will describe this one, which is one of the most marvellous I have ever seen. The little four or five year old daughter of Claude Piqué, King’s librarian living in the rue St. Jacques in Paris, had been ill with smallpox for about a month. Nature not being able to master the poison, she developed abscesses of the sternum and the shoulder joints where the virulent matter tore and separated all the bones of the sternum and the epiphyses of said bone, with a good portion of the head of the scapula. I did not see this alone, but with M. Miron, at present Counsellor and Premier Physician of the King... and Jean Doreau, Surgeon of M. le Comte de Bryane. In their presence, I saw and autopsied this girl, in whom I found what I described above.” (M111, 258)

### CONCLUSION

Ambroise Paré’s influence is not only through his surgical technique and innovative mind, but also strikingly because of his humanity, compassion, and humility. G F Still recognised Paré’s importance in the history of child health. “One is apt to think of Ambroise Paré in connexion with battlefields and wounds rather than suckling infants.”<sup>4</sup> Still acknowledged that Paré had written five chapters “on the care and feeding of infants.”

Although remembered as celebrated war surgeon, Paré treated children and wrote about them. The cases described here illustrate that his interest was beyond feeding difficulties in childhood and included paediatric trauma and disability. Although doubtful of some contemporary treatments, he nevertheless advocated others, such as theriac, which we would now consider ineffective.

Paré’s humility in recognising his limits and seeking a second opinion as he feels it is in his patient’s interests is an example to us all. Paré’s work was also considerably supported by his strong religious belief that cures were not his but God’s through whom Paré, by employing his surgical art, was working. In our more secular age, in spite of our greater understanding, we are reminded of our own human limitations.

Paré is usually remembered for his remarkable contribution to military surgery, but he also clearly saw children in his practice three centuries before the birth of the term “paediatrics”. These cases add another dimension to this multifaceted man. Nearly five hundred years later child health services are officially recognised and rapidly evolving to meet recognised and anticipated needs. However, new constructs can sometimes merely describe age-old problems. Paré’s practice almost five centuries ago is humbling because it reminds us of this.

### ACKNOWLEDGEMENTS

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