Trust and Attunement-Focused EMDR With a Child

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This qualitative case study explores using eye movement desensitization and reprocessing (EMDR) therapy informed by attachment and neuroscience research about the importance of safety (trust) and relationship (attunement). This was chosen to enable a young child to create vital positive neural networks and process early trauma while remaining within the window of receptivity, despite issues of avoidance and control. A single case study design was used with a 5-year-old child who experienced early traumas. Observable symptoms included separation anxiety, avoidance, compromised motor skills, and compromised speech. Data were obtained from carer, child, and teacher report, notes, observations, case file, ratings of emotions, and behaviors. The data were explored for outcome data points, validity, and protocol adherence. Key findings were that EMDR used with attunement and trust-building strategies appeared to support developmental progress while facilitating pervasive post-traumatic growth. EMDR appears to offer appropriate opportunities for incorporating neuroscience and attachment research in order to facilitate trauma processing. Future research into EMDR story-telling procedures and possible causative relationships between trust-building and attunement with neurodevelopmental markers would be a possible next step.

Keywords: attunement; trust-building; child; early trauma; eye movement desensitization and reprocessing (EMDR) therapy

Attachment relationships are widely understood as a biological need, acknowledging children as active partners in relationships from birth (e.g., Bowlby, 1988). An attachment focus is considered necessary when working with children (Cook et al., 2005). Attachment is suggested to have a major impact on brain development (Doyle-Buckwalter, 2017), and early caregiver relationships provide the setting within which children develop neurologically, socially, emotionally, and behaviorally (Schore, 2001). Competencies, such as self-regulation, agency, and communication, develop from these early working models (Cook et al., 2005). When a child experiences significant relational trauma, such as neglect and/or violence from the caregiver, posttraumatic stress disorder (PTSD) may result. PTSD in young children, particularly those with early relational trauma, looks different from that seen in adults (Schore, 2001). Symptoms may be those of separation anxiety; fear of strangers; disturbed sleep; increased arousal; compromised physical, mental, and emotional development; speech and motor skills; social skills; and affect–regulations skills (Perry & Dobson, 2009), as well as compromised attachment (Schuder & Lyons-Ruth, 2004), such that children may shift into defensive attachment behaviors (e.g., avoidance, control, or care-giving) to survive (Liotti, 2004).

This can make it difficult to engage children in therapy and increases the risk of them becoming overwhelmed and retraumatized in therapy through re-enactments of perceived abuse, powerlessness, and helplessness (Liotti, 2004). Therefore, therapeutic approaches providing safe corrective experiences for appropriate neurological and attachment development are recommended (Perry & Dobson, 2009; Trevarthen & Aitken, 2001). Thus, when beginning therapy with a developmentally compromised 5-year-old child with a history of early relationship trauma, who was highly defensive and refused to engage with therapy, a neuroscience and attachment focus was used, and a means of delivery suitable for the child's age and fear-based refusal to participate in therapy was chosen.

There are many therapy approaches regularly used with children with PTSD, such as play therapy, art therapy, psychotherapies, eye movement

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desensitization and reprocessing (EMDR), Dyadic Developmental Psychotherapy (DDP; Hughes, 2017), trauma-focused cognitive behavioral therapy (TF-CBT), storytelling, parenting programs, and so forth, and many articles and books have been written about their use (e.g., Golding, 2014; Malchiodi, 2014). In the current case, TF-CBT was not used for three reasons: the child's age, refusal to engage, and no conscious memory of the trauma. Other therapy models were not used, as the therapist's main training is in psychology and EMDR.

EMDR Therapy

EMDR therapy is a therapeutic model involving an eight-phase protocol and the use of a bilateral dual attention stimulus (DAS; Shapiro, 2018). These are usually eye movements, but other sensory forms may be used if necessary. The eight phases incorporate elements of cognitive behavioral, psychodynamic, and body-centered therapies (Shapiro, 2018). EMDR therapy was initially used for working with trauma but is now evidence-based for use with a wide range of experiences including depression (Wood, Ricketts, & Parry, 2018) and pain (Grant, 2000). The eight phases are: Phase 1—history-taking; Phase 2—preparation, including safety, stabilization, and resources; Phase 3—assessment; Phase 4—desensitization; Phase 5—installation; Phase 6—body scan; Phase 7—closure; and Phase 8—re-evaluation. After each brief period of DAS in Phase 4, the client is invited to make a brief comment on what he or she notices now. Targets are covered in order from past to present with each present trigger leading to a future template. This phase continues until the target memory feels resolved (usually a Subjective Units of Distress [SUD Scores] rating of 0/10).

The Adaptive Information Processing Model

The conceptual and theoretical underpinning of EMDR is the Adaptive Information Processing (AIP) model (Shapiro, 2018), which provides the framework and principles for treatment and an explanation of pathology. The AIP model is based on the hypothesis of a physiological information processing system in the brain aimed at processing experiences that results in adaptive resolution. At times of sufficient distress, this processing system is disturbed, neural homeostasis is lost, and the system is unable to fulfill its usual function, resulting in automatic storage of all the elements of traumatic experiences (e.g., event, sounds, feelings, sensations, thoughts) in a maladaptive state-specific manner. EMDR therapy is hypothesized to activate the person's information processing system and self-healing processes during the targeting of traumatic memories (while safe), and it is thought the application of DAS facilitates information processing, leading to new associations and the linking of maladaptive stored information to other, more adaptive material in the brain through spontaneous insights and emotional shifts.

Integration of EMDR Therapy, Attachment, and Neuroscience

There is much neuroscience literature that appears complementary with the AIP model. There is also much neuroscience literature that explains the importance of attachment (Cozolino, 2017) and attunement (Baylin & Hughes, 2016; Stern, 1985) to neurological development. Safety and connectedness with another person are proposed as critical to wellness (Schore, 2017); only in safe environments is it believed to be possible to engage positive social engagement behaviors and inhibit defense systems activated by perceived threat (Porges, 2004). The window of receptivity (Wieland, 2017) was incorporated to aid clinical decisions on when to reprocess and when prioritizing trust-building and attunement might be needed. The idea was that using receptivity as a guide might help avoid triggering sympathetic spinal chain or dorsal vagal defenses (Porges, 2011). There is increasing support for therapy with children who experienced early trauma to include safe corrective attachment experiences that impact at a neurological level (Golding, 2014; Perry & Dobson, 2009), and there is some evidence that current maternal and therapist sensitivity and quality of caregiving behaviors are able to modify the functioning of cortico-limbic circuits (Swain et al., 2014). While traumatic material may process without these positive attachment experiences, there is a risk of therapy without it re-enacting trauma within a traumatized neural system rather than reprocessing it within a balanced neural system and placing the child at risk of further abuse and mental health difficulties (Liotti, 2004). Therefore, a focus on trust and attunement to build secure inner experience is likely to be important for this child to develop a functional self-view and worldview.

The Present Case Study

Design

A qualitative single case study design was used to explore the integration of standard protocol EMDR treatment while prioritizing safety (trust) and

relational connectedness (attunement) when working with a 5-year-old child. There were 18 (usually weekly) therapy sessions with carer and child within a 6-month period. Data were obtained from carer, child, and teacher self-report, case file, sessions, supervision, notes, observations, emotional ratings, and drawings.

Methods

Assessment included questions on a range of issues in line with service requirements and recommendations by Adler-Tapia and Settle (2017), such as developmental history, current concerns, family and trauma history, current family functioning, routines, supports, sleeping, current strengths and challenges, school performance, social skills and friendships, and goals.

The use of Phase 2 improves outcomes for children (Adler-Tapia & Settle, 2017), and options acceptable to the child, such as butterfly hugs (Artigas & Jarero, 2010), play, breath, and cuddles with carer, were used throughout. Phase 2 skills, plus dual attention on present moment safety supported by the DAS, plus the use of titration and pacing, were used as aids to working within the window of receptivity.

Standard protocol EMDR adapted for young children by the use of storytelling with a focus on attachment informed by neuroscience was used throughout. This meant there was more focus on attunement, trust, and neurological changes than on reprocessing at times. The carer was present during all sessions, acted as co-therapist, and provided a source of comfort for the child. Tapping was used as an age-appropriate adaptation (Morris-Smith & Silvestre, 2013). The story about the child's early experiences was constructed with the carer at session 3 to activate the necessary neural memory networks for reprocessing. Comments from the child were incorporated into the therapy.

Guided by the works on adapting EMDR for children, the trauma story was titrated by starting with a short sentence sandwiched between the positives of being OK before birth and current experiences of being loved and cared for. The amount of traumatic material included increased as the child's tolerance grew over time, assessed by close observation of facial movements, eye gaze, body movements, behaviors, and verbal statements. Breath, play, or butterfly hugs were used to re-establish safety between storytelling. Initially, there was more time between sets, and as tolerance increased, there was less time between sets.

Participants

The client was a 5-year-old child referred for early trauma, separation anxiety, panic attacks, and difficulties with sleeping. She was also experiencing generalized defensive avoidance and control behaviors, compromised fine and gross motor skills, and compromised speech. The therapist is a senior clinical psychologist, certified clinical neuropsychotherapist, and an accredited EMDR practitioner with some DDP training employed by a child and adolescent mental health service. The child was allocated randomly through the intake process.

The carer referred to is the mother of four older children (aged 11 years to 20s). She has cared for the client since she was 3 months old. She has many parenting skills, and there were no safety issues, mental health issues, attachment issues, or other trauma issues identified within the family. The foster family home includes two parents and five children, with grandparents, uncles, aunts, and cousins living nearby.

The school teacher referred to is the child's primary school class teacher. She has several years' experience and, after a meeting with the therapist and parent, was willing to incorporate stabilizing strategies into the school day. Both carer and teacher were accepted as reliable reporters of observed behavior.

Data Analysis

Six items were identified for analysis: markers of trust and attunement, markers of neurological change, relationships between the markers, identifying in-session activities related to observed in-session increases in markers, identifying in-session activities related to postsession markers of neurological change, and dentifying the qualities of life events that appeared to have a negative effect on both types of markers. These markers were chosen as being significant and relevant to the case and the literature (e.g., Baylin & Hughes, 2016; Stern, 1985). Drawings are included to add to the available data but were not themselves subject to analysis due to time constraints and word limits.

The data were explored by looking for evidence of absence or presence of the chosen markers and for evidence of co-occurrence of markers of trust and attunement and neurological change. Relationships between markers, sessions, and life events were examined for themes and connections, and then for life events that may have impacted negatively on attachment and neurological functioning. The data were also explored, visually checking for evidence of deviation from the standard protocol adapted for children.

From Session 3 onward, the child communicated her feelings through an "emotional faces" chart chosen for its acceptability to the child rather than validity. Emotions drawn, labelled, and available to choose were

confused, worried, happy, scared, annoyed, sick, tired, hungry, angry, interested, excited, bored, lonely, good, silly, grumpy, frustrated, and sad. The child's ratings were consistent across sessions with only three to four faces used. Based on behavior and self-reports at the time of rating, an approximation was made to a SUD Scores scale for ease of reporting outcome. When the child felt things were too much, she put "tired" (SUD Scores approximation 8/10), when anxious "worried" (SUD Scores approximation 6/10), "hungry" was a middle ground (SUD Scores 4/10), when all right she would put "happy" (SUD Scores approximation 1–2/10), and when very happy included carer and therapist as "happy" (SUD Scores approximation 0/10).

Treatment

In the wider child psychotherapy literature, storytelling appears as a generally accepted therapeutic modality and is useful for children removed from birth families (Golding, 2014). There were no research studies using storytelling with EMDR found on a Web search, but there is clinical evidence for the use of storytelling (Lovett, 1999, 2014; Morris-Smith & Silvestre, 2013). There is also clinical and research evidence for EMDR therapy's usefulness with children in general (e.g., Adler-Tapia & Settle, 2009; Jaberghaderi, Greenwald, Rubin, Zand, & Dolatabadi, 2004) and clinical evidence for a multimodal approach with children (Adler-Tapia & Settle, 2017), including for children with attachment trauma (Gomez, 2013; Wesselmann, Armstrong, & Schweitzer, 2017; Wesselmann et al., 2012). Therefore, the eight-phase standard protocol (Shapiro, 2018), adapted for a young child by including the carer, using storytelling, and focusing on trust-building and attunement, was followed. This method was chosen due to the clinical and research evidence base, presentation (e.g., preverbal trauma and defensive behaviors), refusal to engage, and the chronological age of the child.

Description of Case

Client History and Presenting Problem

The child experienced domestic violence and neglect within her birth family until 3 months old when a care and protection referral was initiated. The child was immediately removed. Many details are not known. On arrival in foster care, the child had vomiting in response to loud noises and shouting. She never learned to crawl, all milestones were delayed, and she had speech and language difficulties (symptoms recorded as atypical of a communication disorder). At the time of assessment, the child was attending a mainstream primary school, and good relationships were evident between carer and child.

The reported and demonstrated behaviors at the first assessment session were separation anxiety (clinging to carer's clothes, screaming, crying), difficulties with fine motor skills (e.g., writing and drawing), unintelligible speech (multiple incorrect letters, including the first letter, in a single word), difficulty sleeping, poor concentration, poor school performance, daily panic attacks (often with vomiting), avoidance of new people and places (screaming, crying, refusing to get out of car), being "tired" (symptom of dissociation in children [Adler-Tapia & Settle, 2012]), freezing and/or blank gaze (described as "not seeing you," "not home behind her eyes") also considered dissociative in nature (Morris-Smith & Silvestre, 2013), frightened of riding her pony and bike (avoidance, crying, and screaming), struggling to walk up steps (balance and coordination), hiding behind her teacher at school, picking her skin and causing scarring, having frequent frustration tantrums (shouting, screaming, and hitting), and crying often and for long periods in a fetal position. The foster family thought she would "catch-up" over time, but this had not occurred. A diagnosis of PTSD (*Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013) was given.

Case Conceptualization

It was hypothesized that automatic neuroception survival functions in the brain were activated during early trauma and consolidated by trauma chronicity such that these preverbal trauma memory networks were not adaptively processed. These are therefore suggested to be impacting on broad developmental progress, felt safety, and on developmental trauma symptoms (Perry & Dobson, 2009). The child's controlling and avoidant behaviors were construed as defensive (Baylin & Hughes, 2016) against the hypothesized internalized working model of being helpless and powerless. Therefore, building confidence and agency, plus not retraumatizing the child further, was construed as essential. Additionally, the child was reported to demonstrate some features of a dissociative nature, such as being tired, freezing, and having a blank gaze, so it was important to conduct therapy in a manner that did not trigger the need for her to absent herself (Morris-Smith & Silvestre, 2013).

Course of Treatment

There were 18 sessions within 6 months. Sessions were weekly unless prevented from being so by holidays, illness, or bereavement.

Weeks 1–2, Sessions 1 and 2. Phase 1: Pretreatment Assessment. The assessment was carried out with carer and child week 1, and week 2 with carer alone. The child appeared frightened, hiding her head, clinging, refusing to get off the carer's lap, and her speech was unintelligible to the therapist and carer. Appropriate psychoeducational information was given with suggestions for immediate symptom relief through strategies for use in session and at home (e.g., safe, rhythmic, repetitive, enjoyable, and relational activities done with awareness, such as ball games, breath, butterfly hugs, clapping games, etc. [e.g., Perry, 2006]). A book on understanding the brain system of early childhood was also suggested (Siegel & Bryson, 2011). The second session without the child present involved history- taking and assessment.

Week 3, Session 3. Phase 2: Safety, Neuro—Psycho-Trauma Education, and Stabilization. Initially, the child showed behaviors similar to the first session. The carer related taking the child to school while she was screaming, clinging, and crying, and the child put the "tired" face on the board. Her carer confirmed the child often said she was tired when things were difficult for her. The therapist validated the child's experience (Silberg, 2013), let her know she had been heard and understood (the conversation about current difficulties was too much), and then moved on to a neutral topic.

The child refused to try safe place (or any variations thereof), attempted to control the parent (through refusal and distraction), and appeared suspicious of, and was uncooperative with, requests. In the therapist's view, this was understandable and was framed to the child and carer as her perhaps, feeling worried about what was going to happen and not trusting the adults to keep her safe or understand and meet her needs. This way of accepting and validating her feelings in the sessions continued throughout therapy. The child appeared to build confidence almost immediately, agreed to try butterfly hugs (Artigas & Jarero, 2010), changed her face board to "happy," and toward the end of the session got down from the carer's lap (evidence of felt safety and trust) and did a drawing of herself and the therapist (Figure 1).

Week 4, Session 4. Phase 3: Target Setting and Phase 4: Reprocessing Using DAS. The child arrived more confidently (e.g., not holding tight to carer's hand). The child refused to engage with any DAS using fingers, puppets, clapping game, or soft toys, but eventually accepted the carer tapping. The therapist told the story to better titrate the material according to the child's responses by monitoring small, unconscious facial muscle responses to emotional material. The child put her hand over her ears and refused to listen to the story. She was

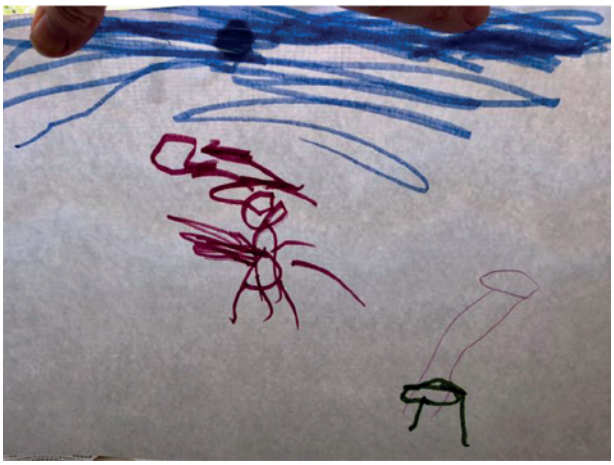

FIGURE 1. Drawing from Session 3. Child and therapist on chairs in single colors, no groundline. Figures have no arms, bodies, hair, eyes, noses, or mouths. The large squiggles around the child's head is her hair bow.

encouraged not to listen, "That's right, put your hands over your ears and don't listen, but I'm going to tell the story and (carer) is going to listen." The story was told while the carer provided DAS. The story was as already described. After two sets, the child was listening to the story. The story was told several times with play between sets.

Weeks 5–8, Sessions 5–8. Phase 4: Reprocessing Using DAS.

Week 5, Session 5. A more detailed story version, including additions from the child, was covered several times with DAS. On some occasions, the child moved her carer's hands to tap faster. At the end, she got down from the carer's lap and sang a happy song and rated herself happy.

Week 6, Session 6. The child's speech was clear and understandable, with few letter substitutions. The carer reported this occurred spontaneously between sessions. The child talked a lot, explored the room, and engaged well at the start. A more detailed story was told with DAS during which the child appeared to be somewhat dissociated (not talking, blank eyes). The therapist asked if all parts of her knew she had grown up and was 5 years old now. The child replied "No." DAS followed. The therapist then repeated the question. The child replied "Yes." DAS followed.

The child then drew a picture (DAS applied during) with body, eyes, nose, and mouth (Figure 2). She told her own story of being "hurt," being "cut," and drew a mark on the body to show the cut, followed by "it's bleeding" drawn in red, followed by "I need a plaster" drawn in brown over the blood, ending after several sets with

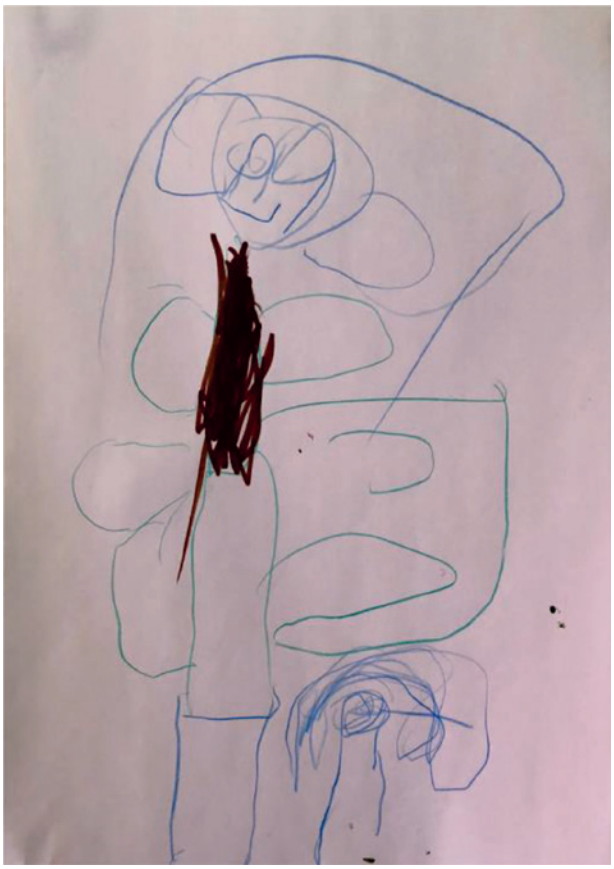

FIGURE 2. Drawing from Session 6. Child with hair, eyes, nose, and mouth (all one color), showing cut covered with plaster.

"I'm all better now." After this, the child spontaneously engaged in a positive way.

Week 9, Session 7. The carer reported the child asked about her birth parents for the first time and with no distress. Storytelling was used to cover all traumas with DAS. The child was able to listen and stay receptive without distress. A positive cognition (PC) of "I am big now and I can choose" was used. The body scan was clear. Then the strongest present trigger of school term starting shortly was processed. After several sets, no further anxiety was raised. A PC of "I like school" was installed using DAS, and a body scan was clear. Future template was covered.

Week 10, Session 8. No anxiety was reported or elicited. No current present triggers were reported. The decision was made to reinforce wellness neural networks, feelings, beliefs, and behaviors. Her speech was clear and intlelligible. The child confirmed she was excited about school starting (reinforced with DAS). The child then did a drawing using different

FIGURE 3. Drawing from Session 8. Multicolored drawing of child and carer (child bigger than carer) with hair, eyes, nose, mouth, bodies, arms, and legs touching the ground, random letters.

colors and including details such as eyes, nose, mouth, and hair (Figure 3).

Week 11 , Session 9. The child was going to school and was engaging well with other children and the teacher for the first time. Feedback from the teacher was that her speech, social skills, and ability to explore and learn was much improved. During session, the child sat on a separate chair for the first time. All positives were reinforced with DAS. It was intended to probe further for present triggers at the next session.

Weeks 12–17, Sessions 10–13. Return to Phase 2: Preparation.

Week 12, Between Sessions 9 and 10. Between Sessions 9 and 10, appointments were postponed due to a death and an unplanned visit from the biological mother. It was reported the child turned her back on her mother and walked away. She then started to show distress (e.g., increased separation distress, crying, screaming, angry outbursts, e.g., "You can't tell me what to do; you are not my mum").

Week 14, Session 10. The child appeared highly distressed with the same behaviors as in Session 1. This was a choice point, whether to reprocess or reestablish

safety and stability through attunement and trust-building. Reprocessing was considered, but the risk of overwhelming and harming the child, coupled with the child's refusal to collaborate, made that seem ill-advised. Therefore, the child's distress was validated, labeled temporary in nature (instilling hope for the future [Silberg, 2013]), and understandable in the circumstances. It was made clear to the child that the session would focus on feeling safe. After 4 minutes, the child came out of hiding and took part in the session but did not get off the carer's lap. When she started to speak, her speech was unintelligible with lots of letter substitutions.

Week 15, Session 11. The child presented as more confident. She stayed in contact with her mother's chair, but got off her lap. She made a family with toys and ran through scenarios of care and nurturing (some DAS used).

Week 16, Session 12. A little separation anxiety about school remained. However, the child was now getting on her pony without fear for the first time, and some of her words were pronounced noticeably correctly. The child sat on her own seat throughout. The session continued to focus on safety, trust, play, and confidence.

Week 17, Session 13. Feedback was positive, and the child sat on her own chair. Separation anxiety was reported as nil (going to school on her own). Her speech had improved further. Her writing, balance, and coordination were all improved. The child was talking about liking school, was getting up happy, getting dressed by herself, and tidying her toys away without protest, riding her pony off the lead-rein, and riding her bike without stabilizers for the first time.

Weeks 18–19, Sessions 14–15. Return to Phase 4.

Week 18, Session 14. Between sessions, the child's pony died, but she coped well. She presented with very clear speech (words incorrectly pronounced had the correct first letter, e.g., bonco-bronco and bother-brother), sat separately, and was very chatty. Feedback was that she had been confident to ride her new pony off the lead straight away. School had been a little difficult at the end of term with some separation anxiety. When this was talked about, the child grabbed her comfort cloth and held it but quickly put it down and resumed play once the therapist talked about that being understandable after a long term with some big challenges.

The death and the biological mother visit were told as stories to SUD Scores of 0, followed by the PC "I'm big now, I can choose," clear body scan, and future template completed. The next target was the most recent worst school incident with a fellow pupil. During DAS sets, the child asked her carer to "tap faster, faster." The child worked through the incident and an educational interweave, eventually arriving at "I skip to school" (said while skipping). The PC "I have friends" was installed, and body scan was clear. The child wrote out the song made up in session as part of future template.

Week 19, Session 15. Phase 4. A close family member became critically ill, which necessitated the carer being unexpectedly away all day for several days. The child had to be held while the carer went out, was bed-wetting, and was coming into the carer's bed. Compared to other sessions, the child did not appear overwhelmed or avoidant, and this present trigger was able to be processed straight away. The event was targeted with storytelling, followed by a PC of "I am OK," a clear body scan, and future template.

Weeks 20–22, Sessions 16–18. At Session 17, more new behaviors were reported, such as making her bed and taking her pony to share with the neighboring children (DAS applied). The child sat separately for the sessions. There were nil concerns by the carer or child, and no anxiety was activated by talking about school, new people or places, or future contact. As evidence of this, the child had voluntarily spoken to her biological mother by phone and experienced no distress afterward. The child's speech was significantly improved; for example, she was able to say previously impossible words like *hyacinth* and *strawberries*. The only thing that raised any anxiety was ending therapy. This was targeted as a present trigger, followed by a focus on developing a positive experience of ending. At Session 18, the child said she felt OK about not coming anymore. She didn't want to do any drawing but, quickly scribbled a small picture of a mermaid (Figure 4) when asked. The child wanted to connect through shared activities, perhaps as if drawing was an insufficient medium for her to express herself. In particular, she enjoyed leading a dance and having the carer and therapist follow her dance moves, especially the ballet leaping ones. Final reports were of social skills progress in the community and at school, academic progress, no

FIGURE 4. Sketch of mermaid from Session 18. Quick sketch 2 inches high of mermaid.

separation anxiety, and no problems going to new places or meeting new people.

Summary of Work

1. Stabilizing techniques taught and established in-session, at home, and in school.
2. Resources installed.

TABLE 1. Subjective Units of Distress Scale by Session

Session	Time 1: Start of Session	Time 2: End of Session
Session 3	8	2
Session 4	8	4
Session 5	8	2
Session 6	4	0
Session 7	4	0
Session 8	0	0
Session 9	0	0
Session 10[a]	8	3
Session 11	8	2
Session 12	2	0
Session 13	0	0
Session 14[a]	8	0
Session 15	8	0
Session 16	0	0
Session 17	4 (ending)	0
Session 18	0	0

[a]Denotes the occurrence of destabilizing or traumatizing incidents just prior to session.

3. Earliest trauma processed to SUD Scores 0/10.
4. Present triggers processed with future templates:
   - School/separation anxiety to SUD Scores 0/10.
   - Birth mother visit to SUD Scores 0/10.
   - School incident to SUD Scores 0/10.
   - Family illness to SUD Scores 0/10.
   - Ending therapy to 0/10.

Results

Five factors were identified as relevant to progress and were used for analysis. (a) Markers of trust and attunement: a felt sense of relational safety demonstrated by participation in conversation, play, and therapy activities, body turned toward therapist, eye gaze, reduced controlling behaviors (e.g., distracting carer), and exploring new things; and markers of neurological change: improved speech, development of drawings, developing coordination and fine and gross motor skills, increasing creativity, and emerging new social behaviors. (b) Relationships between markers occurring together or separately. (c) In-session activities, which may have been related to observed in-session increases in markers of attunement. (d) In-session activities, which may have been related to postsession markers of neurological change. (e) The qualities of life events that appeared to have a negative effect on both types of markers. Examples of all these are given in Tables 1–4 and in the discussion. In addition, SUD Scores and drawings are presented as evidence of change.

Ratings of disturbance via SUD Scores (see Table 1) varied over time due to the impact of significant events. After reducing to 0 by Session 8, SUD Scores went up at Sessions 10, 14, and 15. After these events, SUD Scores returned to 0, both when reprocessing was used at Sessions 14 and 15 and when it wasn't at Sessions 10–13.

Markers of trust and attunement considered relevant and significant can be seen in Table 2. These markers (eye contact, body orientation, controlling, participation and communication, exploring and play, doing new things, leading play, and appropriate independence) were used to identify whether there was change or not between Sessions 1–3 and 16–18.

Markers of neurological change considered relevant and significant can be seen in Table 3. These markers (speech, fine motor skills, drawing, coordination and gross motor skills, play, separation anxiety, creativity, and social engagement) were then used to see whether there was change or not between Sessions 1–3 and 16–18.

TABLE 2. Change in Markers of Trust and Attunement Over Sessions

Markers of Trust and Attunement	Sessions 1–3 Examples	Sessions 16–18 Examples
Eye contact with therapist	Little evidence: not looking at therapist, hiding face	A lot of evidence: looking at therapist, nonverbal communication, smiling
Body orientation to therapist	Turned away, holding on to carer	Turned toward or straight
Controlling (mistrust - defense)	A lot of evidence: distracting carer from task, e.g., bringing up nonrelated events, refusing to take part orally (saying no) and behaviorally (head and body turned away, no eye contact)	No evidence
Participation and communication	None to very little: not talking, not engaging with toys or therapist	Fully participating and initiating: talking, choosing activities, sharing information, actively contributing to Phase 4 processing and to activities.
Exploring and play (secure base)	None to very little: not getting off carer's lap, not looking at or showing interest in toys and materials	Exploring and sharing new ideas and new play: sitting on own chair, choosing own toys and materials, trying new activities
Doing new things	No evidence	Evidence of many new actions, e.g., riding pony off lead, riding bicycle without stabilizers, swimming in sea, going out with dad, going to city center shopping center
Leading play	No evidence	Initiating the use of materials and activities and leading new activity (dance) in last session
Appropriate independence	Holding carer's hand tightly, sitting on carer's lap and holding on to her tightly	Sitting on own seat and walking/skipping down hall by self.

Table 4 shows if and when the markers co-occurred during sessions. Markers are presented in negative and positive form to distinguish between the absence or presence of behaviors in both forms at the time frames used. This information was obtained by going over the session notes for observed instances

TABLE 3. Change in Markers of Neurological Development Over Sessions

Markers of Neurological Change	Sessions 1–3	Sessions 16–18
Speech	Multiple letter substitutions in each word including first letter. Carer and therapist unable to understand child's speech. Short single sentences.	Able to pronounce a wide range of words correctly and no first letter substitutions. Carer and therapist have no difficulty understanding child's speech. Able to use multiple sentences, including longer sentences.
Fine motor skills	Writing single letters with letters poorly formed.	Writing multiple sentences with more correctly formed lettering.
Drawing	Figures with head and legs only. Single or few colors.	Figures with head, hair, facial features, arms, legs, bodies, and awareness of foreground. More use of varied colors.
Coordination and gross motor skills	Balance poor and tripping over own feet. No evidence of skipping or dancing.	Able to dance, skip, and leap. Requesting ballet lessons.
Play	No/very little evidence of any play in early sessions.	Creative play seen in many sessions and initiating play and sharing play with therapist and carer.
Separation anxiety	High number of separation anxiety behaviors daily (e.g., clinging, crying, screaming).	None.
Creativity	No evidence of creativity in early sessions.	Evidence of creativity, including making up stories with toys, making up dance moves and songs.
Social engagement	No friends.	Friends at school and locally.

TABLE 4. Co-occurring Markers of Trust and Attunement and Neurological Functioning

Session	Negative Markers of Trust and Attunement	Negative Neurological Markers	Positive Markers of Trust and Attunement	Positive Neurological Markers
1–3	No/little eye contact Body turned away No/little participation No/little exploring and play Avoids new things Controlling others Separation anxiety Distressed at contact with biological mother	Compromised speech Compromised fine and gross motor skills Poor coordination Poor sleep No/little creative play No social engagement		
9			Good eye contact, body turned toward, participation, communication, play, and exploration. Doing new things and increased independence Asking about mother Going into school on own No separation anxiety or controlling others	Clear speech More detailed drawings Sleeping well Improved fine and gross motor control, e.g., writing and balance Increased interest and skills in friendships More creative play Riding bike without stabilizers
10[a]	No/little eye contact Body turned away No/little participation No/little exploring and play Avoid new things Controlling others Separation anxiety Avoiding contact with biological mother	Compromised speech Compromised fine and gross motor skills Poor coordination Poor sleep No/little creative play No social engagement		
16–18			Good eye contact, body turned toward, participation, communication, exploration, and play Doing new things and increased independence Showing leadership Talking to biological mother Skipping into school No separation anxiety or controlling of others	Clear speech including complex words Sleeping well Improved fine motor control, e.g., writing Improved gross motor skills and coordination, e.g., riding bike without stabilizers, dancing, and leaping More creative play Increased interest and skills in friendships

[a]Disturbing incident occurred.

of behaviors session by session. Behaviors were then allocated as a negative or positive example of the appropriate marker.

In-session therapist activities that may have related to observed in-session markers of trust and attunement (from Baylin & Hughes [2016] and Kennedy [2011] and

also reported in other literature too voluminous to list here) are posited to be reliability and consistency, sustained in-session attention, eye gaze, vocal prosody, emotional resonance, facial expression, engaging with child in play activities with genuine enjoyment, pacing and timing, feeding back understanding of child's feelings and behaviors to validate, normalize, and contain (e.g., in Sessions 3, 10, and 14 when validation and normalizing difficulties were followed by immediately improved engagement and cooperation), listening to and respecting the child's wishes (reinforcing safety and agency), sandwiching the traumatic story between positive anchors, and titration of traumatic material into manageable bite-sized chunks, making it easy to process and hypothesized to disconfirm the child's belief that she would be overwhelmed and thereby allow the memory to be adaptively reprocessed and stored (Ecker, Ticic, & Hulley, 2013).

In-session activities possibly related to post-session markers of neurological change were attunement, which is widely thought to be related to well-being and developmental processes (Golding, 2014; Perry & Dobson, 2009; Stern, 1985; Swain et al., 2014); staying in the window of receptivity, also thought to be essential for learning and trauma processing as well as child development (Porges, 2011; Wieland, 2017); trust-building and the possible consequent neuroception of safety, leading to increased tone of the social engagement system (see Porges, 2011 for full explanation of process); play, thought to be important for brain development in children (Porges, 2011); and story-telling, thought to be an age- and neurodevelopmentally appropriate therapeutic modality for children and to facilitate synchronous connectivity between the minds of those involved and reduce defensive behaviors (Baylin & Hughes, 2016; Golding, 2014; Malchiodi, 2014).

Life events posited to have perhaps had a negative impact on functioning and attachment security (e.g., Baylin & Hughes, 2016) were early experiences of neglect and domestic violence, separation from mother and hospitalization without family, family member's death and surprise visit by biological mother (possibly triggering fear of being removed from carer), carer and wider family preoccupation or absence at times due to illness or death of family members (possibly triggering fears of losing carer), for example, the death of her pony was reported not to have greatly preoccupied the family and resulted in little disturbance and no negative neurological changes. The death of one family member and critical illness of another are known to have greatly preoccupied the family and both resulted in significant disturbance and negative neurological changes.

There is unfortunately no capacity in this limited case study to explore the significance and meanings of children's drawings and interpret the changes over time. Therefore, the observable differences between the early and later drawings and writings are presented as evidence of change over time only, with no evaluation of meaning of emotional expression or developmental factors. The child's earlier in-session drawings used few colors, had heads and legs only, and included no foreground. Later, in-session drawings used more colors and had hair, facial features, arms, bodies, and foreground. Early writing showed single, random, poorly formed letters. Later writing showed multiple simple sentence construction and improved fine motor control.

The session notes were explored to check for adherence to standard protocol procedures, and no significant deviations were identified, that is, the eight phases were used; past, present, and future were covered in order; two positives or no changes were achieved before returning to target whenever the child engaged sufficiently; two SUD Scores of 0 were achieved before considering the target processed; PCs were installed; body scans were completed; present triggers were followed by future templates.

Discussion

This study was written up because there is little published work on using EMDR with young children, particularly on children who are difficult to engage. This child presented with clearly observable markers of behavioral and neurological change, which made her a good candidate for a case study. The trust-building and attunement approach was used based on the current child EMDR literature, the child's presentation, and the predicted need for the social-engagement system to be activated (Porges, 2011), obviating the risk of re-enacting earlier abusive experiences (Perry, 2006) and the need for corrective relational experiences (Liotti, 2004). The biggest challenge was to engage her in therapy without triggering oppositional defense strategies. Most young children can be engaged in a game (e.g., puppets, clapping) to try EMDR. This child refused several Phase 2 strategies, most forms of DAS, and therapy. It was therefore necessary to prioritize meeting her needs, construed as largely relational safety, so she could take part in therapy.

It is not possible to say whether the use of story-telling (Lovett, 1999) was helpful or unhelpful.

However, it is difficult to see how therapy could have proceeded without it, and as it has a clinical evidence base, its use is felt to be appropriate. It is tempting to think that using Phase 4 continuously throughout would have been more helpful, but it is difficult to see how that could be achieved during the occasions the child refused to engage. Had it been possible, the number of sessions may have been fewer, greater, or no different; therapy outcome may have been the same, worse, or better. On reflection, reprocessing the biological mother's visit could have started at Session 13 (arguably 12), but therapist error meant the story was not prepared for use. This did not appear to be harmful as SUD Scores were 0, and the child was in no distress. This may logically be supposed to have prolonged therapy by one session, but it is equally possible that the additional time spent consolidated safety and attachment and ultimately facilitated reprocessing. In any event, prioritizing of attunement and trust-building continued because of how the child presented, responded, and continued to make good progress without reprocessing. Had that not been the case, therapist choices would likely have been different. Had the four significant events not occurred, perhaps therapy would have concluded sooner, but it is not possible to know for sure.

It has been suggested that children with attachment trauma usually have elements of dissociation (Adler-Tapia & Settle, 2012). This child was reported to freeze and "go blank," so it was considered important to work in the window of receptivity to avoid overwhelming her and triggering dissociative responses. Supporting the idea of dissociation, there was a point in Session 6 where, when asked "Do all parts of you know you are 5?" the child replied "No." That was processed with DAS and the question repeated, to which the child replied "Yes." It is possible this signified a dissociated "part" of the self. There were no other responses of this nature.

As seen in Table 1, SUD Scores were 8 at Sessions 1–3. At Session 8, the past relational trauma appeared to have been reprocessed completely with SUD Scores of 0. However, by Session 10, significant events (a death and biological mother visits) had occurred, and SUD Scores were 8, reducing to 3 by the end of session. From Sessions 11–13, SUD Scores reduced even though no reprocessing took place. It is not possible to identify the cause, but this co-occurred with the use of trust and attunement strategies (e.g., vocal prosody), as did positive neurological changes. SUD Scores flared to 8 at the start of Sessions 14 and 15 and came down to 0 by the end of sessions with Phase 4 and DAS.

The observed regression at Session 10 is perhaps explained by the possibility that the surprise meeting with the biological mother raised a fear of being returned to the birth family. If this were the case, helping the child develop safety and regain trust in the present may have been helpful. Another contributory factor could have been that support for the child may have been reduced during the family crises, possibly raising fears of neglect and abandonment in the present. From Sessions 14 to 17, present triggers were reprocessed to SUD Scores of 0. By Session 18, all activatable past, present, and future disturbances had been targeted (including ending therapy) and resolved to SUD Scores of 0. There were no reports of emotional or behavioral disturbance at home or school. The decision was therefore made with the family to discharge. The carer fed back that the family was delighted with the outcome.

As Tables 2 and 3 show, the markers of trust and attunement and neurological change were more positive at discharge than intake. For example, in-session markers of trust and attunement changed from negative at Sessions 1–3 (e.g., no eye contact) to positive at Sessions 16–18 (e.g., good eye gaze); this also happened for markers of neurological change (e.g., poor speech at Sessions 1–3; clear speech at Sessions 16–18). The speech and motor difficulties were understood to be a result of developmental trauma (Perry & Dobson, 2009) and the resolution of them to demonstrate neurological growth.

As Table 4 shows, markers of trust and attunement and neurological change co-occurred throughout therapy. At Sessions 1–3, markers of trust and attunement and neurological change both occurred in negative form (e.g., no eye contact and compromised speech). By Session 9, markers of both were occurring in positive form (e.g., good eye contact and clearer speech). After mid-therapy significant events, both sets of markers co-occurred in negative form again at Session 10. Both sets of markers co-occurred in positive form again at Sessions 16–18 inclusive. This is evidence of correlation, not causation. However, it does seem to support the notion that, for at least some children with relational trauma, attachment concepts, like trust and attunement, may be helpful, or even necessary, for neurological development (Golding, 2014; Swain et al., 2014). There was no identified evidence of negative and positive markers co-occurring, that is, negative trust and attunement markers co-occurring with positive neurological markers and vice versa.

The in-session drawings (Figures 2–4) are included to add evidence of change over time. There was evidence of difficulties with fine motor control in earlier

drawings, and there were observable changes with the development of bodies, arms, hair, and facial features. These are suggested to be related to developmental, emotional, and social growth (Lowenfield & Brittain, 1987; Malchiodi, 1998). At Session 14, some improvement was seen in a song showing multiple words in structured sentences for the first time, and the letters were somewhat better formed. The 2-inch mermaid sketch at Session 18 (Figure 4) also shows better fine motor control compared to earlier drawings. It is not possible to say what has caused these changes, but they co-occurred with markers of trust and attunement and other markers of neurological development.

Finally, limitations of the current study were that the therapist was a subjective, as well as objective, observer; data were not explored blind; only one child was involved; other events intruded; and it was not anticipated this case would become a case study at the start, so standardized measures are missing.

Conclusions

This was an interesting and complex child to work with. Therapy was not straightforward and was not perfectly carried out. Despite that, this case study makes a small contribution to the existing pool of child EMDR studies (particularly those of young children with early attachment trauma) through the appearance of the apparent co-occurrence of trust and attunement with trauma processing, trauma processing appearing to occur even when reprocessing was not used, neurological development with and without reprocessing, and the possible usefulness of neuroscience and attachment to inform case conceptualization and EMDR therapy. There is evidence of trust-building and attunement co-occurring with neurological development and reduced SUD Scores, but not of direct cause. Research trials of both storytelling and trust and attunement approaches with children compared to standard EMDR are needed. Also, further explorations of the usefulness of neuroscience to inform the choice of adjunct approaches within EMDR therapy are required.

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